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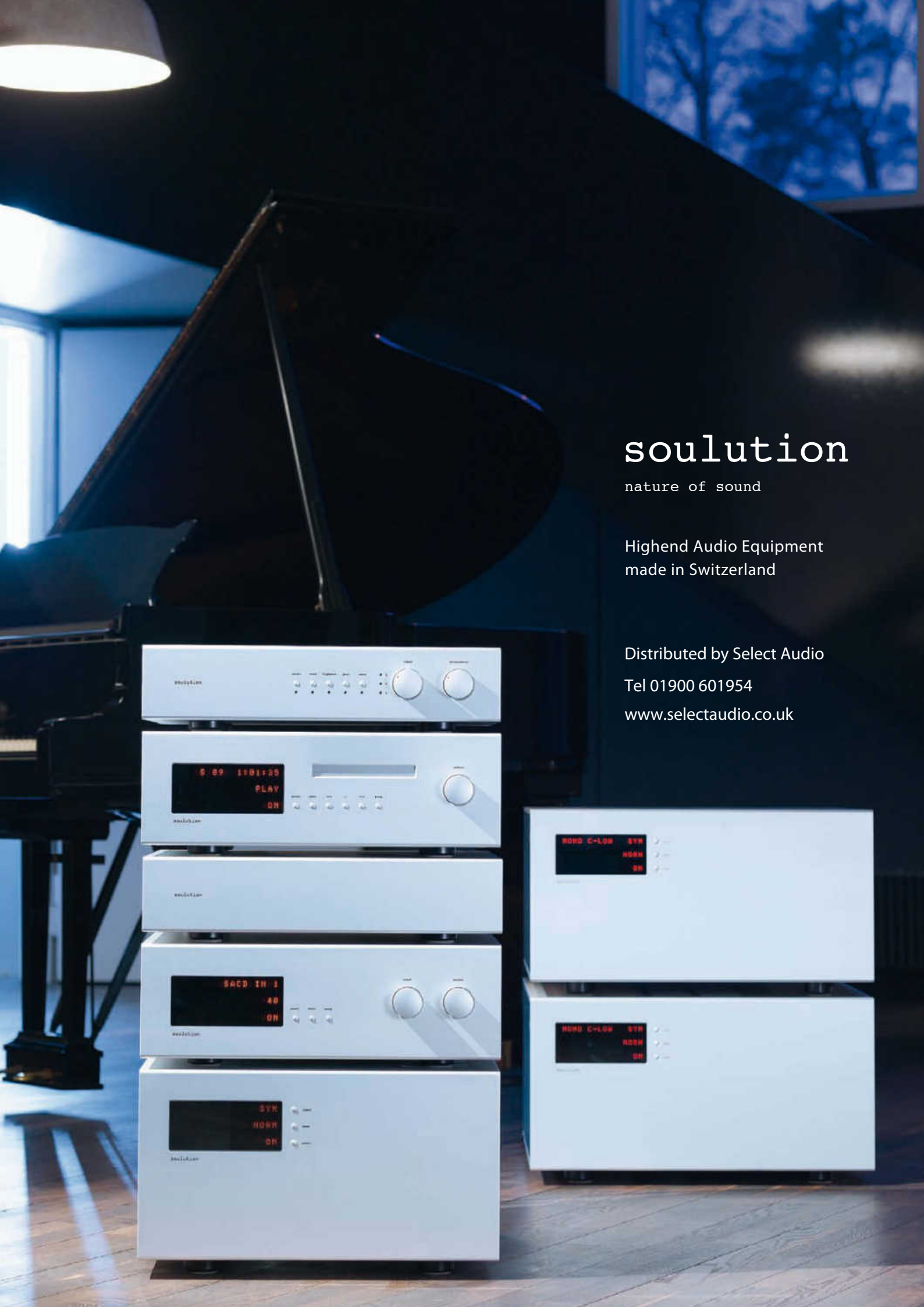
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# editorial

**S**ci-fi writer Arthur C. Clarke (1917-2008) famously said, "any sufficiently advanced technology is indistinguishable from magic." And, for those of us who have been involved in hi-fi for a few decades – whether as an enthusiast, or a member of the audio industry itself – today's digital audio devices can do things we would have thought the stuff of magic when we started out.

Just trying to keep up with all the terminology shows just how far we've come in such a short time. Describing the functionality of many of the players and DACs in this current issue could be broken down into a couple of unreadable paragraphs of acronyms. But, in reality, this is something wonderful.

Why? Because although it's possible to feel like you are drowning in specifications, when the end result is in place, the interface quickly becomes invisible and completely second-nature. An app here, an Ethernet connection there, and you have finger-tip access to the entire musical canon, in whatever audio quality that takes your fancy. We've become so used to this, in fact, that even describing this seems patronising today.

This is, however, a glimpse of what's to come in audio: and it doesn't make for comfortable reading for audio's little guys. The companies making high-technology digital audio devices for the home know buyers are no longer prepared to put up with 'just a DAC' (even if it sounds wonderful), and what's needed to move an audio company into this brave new world is a new generation of digital experts in large R&D teams. And that costs money, the kind of investment smaller audio companies cannot make.

This seems to be particularly true among high-end devices. Rather than making ideosyncratic products, these top-end experts are now making true digital hub devices that have little in common with the simple USB-based DACs that dominate the lower end of the audio market. Perhaps this is to be expected as companies strive to find a niche in an increasingly contended high-end audio market.

In our last issue, we inadvertently printed the wrong telephone number for Padood, the distributors for YG Acoustics. The correct number is +44(0)1223 653199. In addition, the price of the new YG Carmel 2 is £22,800 per pair. Our apologies for any confusion caused.

Finally, congratulations to Paul Gambon, Ivan Regan, Joe George, Larry Gorbett, Linda Spevick, and Jon Pylypchuk, who all win a set of Mad Scientist Blackpods. Well done!

Alan Sircom  
editor@hifiplus.com

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Or email them to [editor@hifiplus.com](mailto:editor@hifiplus.com)

# incoming!

in association with **audioquest**

## LETTER OF THE MONTH WINS A DRAGONFLY

Both AudioQuest and *Hi-Fi+* are passionate about music and the sound it makes. We know what makes a good audio experience, and we know what makes it better. Most modern audio equipment is good, but with the right attitude, right advice, and the right components, the sound it delivers can move from 'good' to 'great' to 'fantastic'. AudioQuest has to deal with a lot of queries regarding audio systems, because almost everything in an audio system is connected with a cable. The company has amassed a wealth of information on a range of topics in audio, both in general terms and with a team comprising keen, specialist audio experts willing to impart their expertise.

Which is why we've teamed up with the good folks at AudioQuest to award the letter of the month a free AudioQuest Dragonfly.

### First bite of the Apple

I feel like I missed the boat on transferring all my music to a computer. My old CD player bit the dust recently and my local dealer shut up shop, so I decided not to buy another player (I'm currently listening to LP and radio only) and intend to finally move all my music to a computer. The trouble is, I'm not very computer literate.

I have a new 21" Apple iMac in the living room now, and will be using this to replace my CD player. But there is no CD player on the computer, so how do I convert my discs? I will also use iTunes, but don't know how to set this up without it compressing my music, which I absolutely don't want to do on principle. Also, how do I connect this computer to my existing hi-fi system? Do you have any other advice for a 'newbie'?

**Mike Lombard, via email**

*Most modern computers no longer feature a CD-ROM drive as standard. Fortunately, Apple does make an external SuperDrive that connects to your computer via USB. This slimline disc drive can play your CDs (and DVDs), and iTunes can be configured to automatically 'rip' that music and store it in your iTunes library. We would strongly recommend storing the library on an external hard drive, and preferably (if you plan on using a USB DAC) storing this library on a Thunderbolt-based hard drive. You change location of the library by clicking on 'Preferences' in the Menu bar when you have opened iTunes, clicking on 'Advanced' and changing the iTunes Media folder location accordingly. While you are in this 'Advanced' tab, tick the boxes marked 'Keep iTunes Media folder organized' and 'Copy files to iTunes Media folder when adding to library'.*



*Now click on the 'General' tab in this 'Preferences' menu. Where it says 'When you insert a CD', select 'Import CD and eject', and then press the 'Import Settings' button next to that option. A new dialogue box appears. Select 'AIFF Encoder' at the 'Import Using' prompt, leave 'Setting' at 'Automatic', and tick the unchecked 'Use error correction when reading Audio CDs' box. Click 'OK', to close this box, then 'OK' again to save all these preference settings.*

*From here, and still in iTunes, go to the 'Window' option on the Menu bar, scroll down to 'Equalizer' and make sure the 'On' button is unchecked. iTunes is now configured for optimal CD playback.*

*It's worth noting, however, your iMac might be transcoding your music to 48kHz sampling rate, and whichever DAC you ultimately use, you need to select it from the 'System Preferences' folder. Fortunately, we have a guide for that, too: <http://www.audioquest.com/pdfs/CA-Setup-Guide.pdf>.*

**Robert Hay – AudioQuest**



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## ► Born-again headphonista

It's great to finally see an audio magazine treating headphone audio with the kind of coverage and respect it deserves. Few are making so bold a move.

I can, however, understand the reluctance of other magazines to follow in your footsteps. I was a bit of a dabbler in headphone listening for many years. I had a good system with cheap but good Sennheiser headphones. When the ear-pads on these headphones finally perished, and one of the channels went intermittently in and out of action, I put headphones away and relied on my two channel system. In hindsight, this seems crazy.

It was only a couple of years ago, when I realised that I simply wasn't listening to my 'main' system that often, that I started to reinvestigate what headphones have to offer. It wasn't that I didn't like my stereo system, but I just didn't have the spare time to listen to it as much as I thought I did. I'm a nightbird and want to listen to music without sending the rest of my family crazy, and it dawned on me that the headphone revolution might be wasted on the young!

The breadth and scope of the headphone world, and the excitement it generates, is truly infectious. I still use my old hi-fi system occasionally, but most of the time I'm listening through my Chord Hugo into a pair of HiFiMAN HE-400i headphones (on the basis of your recommendations).

It's sad that everyone else is so dismissive of this fantastic new world of listening: I went to the Whittlebury Hall show this year, and the HeadZone section was the most exciting and dynamic part of the whole exhibit (and probably the best sounding part, too). And yet, it was relatively poorly attended, with a lot of people in the

queue for Saturday morning admission treating that whole section like it was making a bad smell. Having spent the morning discussing and listening to the latest products with some surprisingly friendly people, I'm now saving up for an Astell & Kern AK380, and I am even considering buying a pair of AudioQuest NightHawks to supplement my HiFiMAN HE-400i, when I want some smooth sounds and a high degree of comfort!

By way of contrast, I spent the rest of the day walking round the 'main' show with an almost constant feeling of disappointment at the sound, and found some of the people manning the stands to be surly and refusing to play anything apart from their own bland jazz. There were exceptions to both, of course, but if Whittlebury Hall is indicative of how audio is changing, then I will side with the professionals in the headphone world, thanks very much!

**Daniel Cohen, via email**

*I don't think you can write off the whole two-channel industry just yet. There are exciting innovations in traditional stereo as well as in the headphone 'space'. But I do agree that this whole branch of tremendous audio is seemingly ignored by audiophiles, often for reasons that don't tend to hold up to scrutiny. I guess a change is gonna come. – Ed*

## It's all so systematic!

Finally you got there! I could not be more happy to see that you finally decided to put together complete audio systems for the benefit of your readers.

After 40 years in this hobby I can put together a system on my own but when I was junior I enjoyed reading reviews of complete audio systems in what used to be the leading Italian hi-fi magazine. It helped me a lot to put together my third audio system and the synergy of the recommended components was just great! This is a real service to your readers, arrange systems at any price level and the lower the budget the higher the value of your input will be! Congratulations!

**Andrea Tubaro, Rome, Italy, via email**

*Thank you. We are still in the 'investigation' stage of whether such system features will prove popular. The reaction has been somewhat mixed in discussions with show-goers, who do not tend to change a whole system, but approach system-building as a step-by-step, piecemeal concept over several years. There is also the difficult question of the importance of changing the complete system against the significance of introducing some kind of generalised systemic approach to system building. Although they are a logistical nightmare for a magazine to develop, we'd like to explore all aspects of system building in greater depth. Who is with us? – Ed*





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# NAS and HeadZone 2015 at Whittlebury Hall

by Alan Sircom

**L**ike the audio world itself, the UK's National Audio Show (NAS) – held every year at the Whittlebury Hall spa hotel near the legendary Silverstone racetrack in Northamptonshire – is undergoing significant change. The NAS still features great traditional audio at all price levels, but the revolution in headphone and in-ear listening has made its mark and the show's HeadZone section is growing at an almost exponential rate. Coming so soon after CanJam London, however, there wasn't a great deal of new equipment shown there that hadn't been seen a few weeks earlier (with a couple of exciting exceptions), but the energy and excitement of that headphone world is definitely rubbing off on traditional audio.

There remains some reluctance among traditional audio enthusiasts in embracing this sea change in audio and many of the more curmudgeonly audio enthusiasts avoiding the HeadZone altogether, but they were not disappointed by the sheer variety of two-channel audio on offer. We have tried to focus specifically on what's new and what's good here, rather than a complete room-by-room account of the event. For more details, go to [www.hifiplus.com](http://www.hifiplus.com) +



The unique £6,250 DS-W1 cartridge by Japanese brand DS Audio uses lasers to read vibration in the stylus



The middle of September in the middle of England is no guarantee of good weather, but the National Audio Show always brings out people from all over the land, eager to queue to be first through the doors to hear the latest in audio equipment



The first sighting of Music First Audio's prototype headphone amplifier, expected to cost around £2,000 in its final form



Turntable modder extraordinaire Inspire Hi-Fi has hot-rod kits for almost every decent deck – including this £695 reboot of the classic Roksan Xerxes



Origin Live's new £12,900 Voyager flagship turntable helps explain why the vinyl revival shows no signs of being just another flash in the pan

*"The NAS still features great traditional audio at all price levels, but the revolution in headphone and in-ear listening has made its mark."*



Vivid's £18,500 B1 Decade uses technology and drivers from its up-scale Giya range





Max Townshend shows off his very visual demonstration of the effect of the Townshend Audio Isolation Podiums



Lawrence Audio loudspeakers, driven by APL digital and Edge analogue electronics sounded big in a small room



Aqua Acoustics is a new name in digital, and sounded great in a Norma and Scansonic system in High End Cable's room



ME-Gethain is a German pro-audio company with low-cost active monitors starting at just over £2,000 per pair



The new dCS Rossini digital front end sounded great through D'Agostino amps and Wilson loudspeakers



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Roksan launched several new products at the show, including a new DAC, a turntable for the Oxygene line, and the wholly new Blak range of electronics



Good value, if not good looking, Eminent Technology loudspeakers sounded great



Olive's new ONE is the brand's first social-media driven music player



Unison Research's new flagship integrated amplifier, the £4,250 Unico 150, is a hybrid design based upon the company's popular and long-standing Unico 100



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Kiwi audio brand Perreux is back in the UK, and the company's first new model is the £1,950 PP3 phono stage

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# Custom In-Ear Monitors: A Snugs fit?

by Alan Sircom

One of audio's biggest tipping points is happening between your ears. The latest big thing in personal audio is very personal, with custom-tailored moulds designed for your own ears to make a perfect fit for an in-ear monitor or earphone. This creates a personalised set of in-ear devices, just as a pair of hand-made shoes or a bespoke suit is personalised. But, unlike a pair of John Lobb brogues or a Huntsman suit, the result doesn't cost a fortune, and new technology is lowering the price of admission. However, because this is a new venture for many audiophiles – especially more traditional audiophiles – we thought it best to walk the listener through the process from beginning to end, using United Sciences' new in ear-scanning technology – wielded by Snugs.

Like fingerprints, the shape and size of our ears are unique and while standard-fit small, medium, and large ear tips are designed to adjust to your ears they are always going to be something of a compromise. Worse, the left and right ear canals are not identical and in some cases the listener needs to buy different size ear tips for the left and right ear (it is worth experimenting with different size tips in both ears to find the least compromised fit). These compromises simply vanish when dedicated moulds made to fit the contours of your ear and ear canal replace those ear tips.

Until recently this moulding process typically required the services of a specialist audiologist and, while not as unpleasant a process as it looks, the bespoke fitting service involves some degree of drooling: you need to hold a piece of styrofoam between your teeth while the two-part foam compound hardens from its resting 'goo' state. These moulds are then sent for 3D scanning. The Snugs experience is different. Rather than filling your ear with foam, the system uses a small light-scanning handset, connected to a computer. The trained operator (who need not be a qualified audiologist, because at no point do they actually insert anything far enough into your ear canal) places a headset (not unlike a pair of headphones, but without the ear cups) on your head, which helps locate the scanning position in three-dimensional space. They then lock the scanner to the headset, and begin to fill in a growing 3D model of the ear and ear canal. Aside from a gentle 'bap, bap' sound during the scanning process, and the fact that - like any moulding or mapping process - you look and feel like a bit of an idiot while it's happening, you can be scanned in about 10 minutes flat.

The 3D map created in the Snugs computer is exactly the same program file as created when a custom moulding is scanned. These files are used to create the custom-fit mouldings for your ears, and as a consequence of cutting out one link in the chain, the Snugs process has lowered the cost of custom moulds. And this means you can now turn your favourite earphones into de facto custom monitors: all you do is specify the kind of earphone you want them for.



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SME Limited  
Transfiguration



*“The scan passed off without a hitch and a week later I was the proud owner of my own pair of custom Snugs.”*

► Reviewers can be prima donnas at times, and our ears are no exception. Mine are either ‘dinky’ or ‘kinky’, and this poses a challenge for custom in-ear moulding processes. It was interesting to see if the same challenge troubles ‘light’ as it troubles ‘goo’. In fact, the scanning process was not troubled by ‘difficult’ ears, although if that kink in my ear canal was closer to the surface, a light scanner would be unable to get past that and this might pose fitting difficulties. In fact, the scan passed off without a hitch and a week later I was the proud owner of my own pair of custom Snugs. It took me longer to set up my camera and take remote-controlled photos of me having my ears scanned than the scanning itself.

This is also going to get simpler: and simpler means cheaper. Currently, the United Sciences eFit scanning system requires connection to a Windows laptop, but it’s clear the next generation of equipment will turn this into an app for a tablet and the scanner itself will become smaller and cheaper. This will mean more people offering a scanning service. Currently, there are just a handful of people criss-crossing the country to zap the ears of CIEM enthusiasts, musicians wanting ear protection, and reviewers trying the system out (a journalist from one of the major newspapers was scanned a few hours before it was my turn). While this is unlikely to ever be the kind of ‘while you wait’ £10 upgrade to a pair of £30 earphones, Snugs is stealthily democratising custom monitors, and that’s a good thing for ears and listeners alike. ►





Peak HiFi is a well established HiFi consultancy based in a small village on the edges of the northern Peak District (The Dark Peak).

The company was formed in 2004 by the owner Shaun Daniels and specialises in high quality audio equipment with a particular fondness for stereo and analogue equipment.

Shaun and Julie operate in a friendly, relaxed domestic environment and pride themselves on a one to one service, allowing you to take all the time necessary and to help you select the best equipment to suit your particular needs and budget. Their large range of demonstration stock has been carefully chosen with this in mind.


At Peak HiFi they are very happy to demonstrate any of the equipment they carry by appointment daytime, evenings and weekends.


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► In democratising custom mouldings, however, it means approaching a new audience with little or no understanding of how these mouldings work, how they fit, how they feel, and how to use them, and these are all important elements of good custom monitor use. The range is fairly large, depending on whether you are using custom monitors, or applying full or half-shell mouldings to existing earphones. There are also specialist models for ear defence (without a headphone component), single ear units for headset users, and even waterproof models for divers. The key models, though, are likely the half and full-shell mouldings because they represent the affordable gateway to CIEM sound to those who already have good earphones. The Snugs are custom made to fit the earphones in the ideal position for your head – while still not quite so flexible or as optimal as CIEMs, this represents the best fit for a production line earphone possible, especially the full-shell design.

Custom monitors mean you play quieter, especially in loud environments. It's worth remembering at this time that the first CIEMs were designed for rock musicians on stage, replacing fold-back monitors and protecting their hearing in the process. While the floor-mounted angled 'cab' was great for hair-rock guitarists to put a foot on to show their purple Spandex 'prowess' to one and all, even all that permed, poodle big hair was no protection against high sound pressure levels, and as a result many musicians who toured during the 1970s and 1980s have significant hearing damage. CIEMs allow musicians to monitor

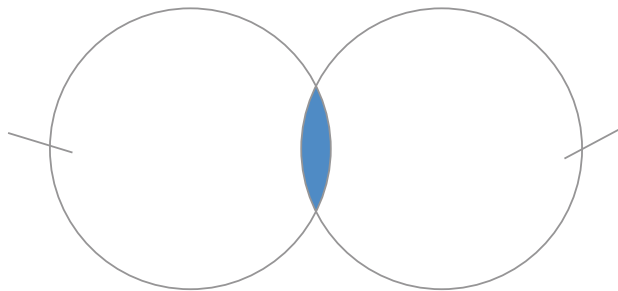
*“They represent the affordable gateway to CIEM sound for those who already have good earphones.”*

their music on stage without having to destroy their hearing. Today, the level of attenuation need not be so severe (few of us regularly work in an environment that can deliver 120dB+ average sound pressure levels), but the benefits remain at quieter levels.

With this comes an important caveat. In a few cases, the absence of background noise has the opposite effect, and listeners turn the music up until they hear distortion. Often this is your own ears relaxing, and long exposures to this sort of listening level ►

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► can damage hearing. Generally, this is not the case with CIEMs, because this kind of listener is at once more discerning and more knowledgeable than their ear-bud using counterparts, but the sheer comfort of custom moulds can make for very extended listening sessions (on long flights, for example) and many hours of constant exposure to music at lower SPLs can also add up. Simply taking short breaks periodically helps a lot here. For those used to CIEMs, this is going over old news, but for newcomers to the whole world of custom monitors, this is a new world.

The only other point to note is the first time you go out in the wide world with a pair of Snugs in place, take extra care. It's surprising how much of our spatial awareness comes from little sonic cues, and when they are significantly attenuated, you can tend not to notice the world around you. Remember this the first time crossing a road! It takes a little while for listeners to get used to wearing custom moulds, and Snugs are no exception. If you've never tried custom-fit in-ear monitors before, the first time you try them is slightly unnerving, like putting those little yellow ear defenders into your ear, except it covers the inner section of the ear. Perhaps worse for first-timers, the Snugs come with a little tube of lubricant and you need to 'lube up' for the first few times you insert them, at least until your own earwax takes over. You also need to learn how to insert and remove custom moulds, if you have never done this before (it's a corkscrew motion in and out of the ear – as described in the supplied booklet).

So, why go through this? You do this because the outside world quickly disappears like putting your head under water, in that strangely comforting 'back to the womb' manner. But then the strangeness of the feeling quickly disappears, especially at the first bar of music. Put them on a couple of times, however, and it's like a natural extension of your ear, and fitting a universal fit ear tip will seem forever clumsy and wrong afterwards. The sensation some have of earphones always almost falling out of your ears is replaced with a natural and easy fit that feels like it was made for your ear... because it was. When they are in place, nothing apart from physically removing them is going to shake these monitors loose: over-ear loop sport earphones are exceptionally solidly held in place, and anything that might accidentally dislodge these earphones will dislodge dental work first!

Although you could in theory use Snugs custom moulds for any earphone (and Snugs has an ever-growing list of 'compatible' earphones), it's unlikely that someone will use a £150 custom mould with a £30 earphone (although the SoundMAGIC E10S is proving a surprisingly popular match). Two popular choices have emerged within the Snugs line – the Sennheiser ID800 and the Shure SE846, with the Shure model edging ahead slightly in the popularity stakes. Never one to pass up on a good thing, I borrowed a set of Shure SE846 earphones, and had a set of silicone Snugs (a red metallic one for the right ear, and a blue metallic one for the left) made up specifically for my ears.

The Shure SE846 is a truly remarkable earphone in its own right, with an incredibly detailed, dynamic, and accurate presentation that you'd struggle to find from a pair of loudspeakers that cost this side of a nice Mercedes. With the Snugs in place, everything snaps into even tighter focus. They are comfortable and the tonal balance is nigh on perfect because the positioning of IEM in your

ear canal is nigh on perfect. It's a strikingly perfect audio experience, one that will both highlight any potential weak links in the signal chain and yet one that invites you to listen to music for hours and hours on end, at lower levels than you might expect. Pretty much as soon as the loan period for the Shure SE846 expires, I'll be buying a pair of SE846 to match my Snugs. And from there, I'm going to be shopping around for a good DAP, DAC and/or amp to match: it is that good!

What's the difference (if any) between moulds made by an audiologist, and those made by a Snugs specialist? Irrespective of differences an audiologist can advise you on good ear health, the right way to clear your ears of cerumen (ear wax), how to clean both your ears and your CIEMs, and more. We will discuss this and more in a subsequent feature in *Hi-Fi+*.

My problem now is there's no way back. The Snugs team have my ears on file, and although our ears change over the years, those files should be good for at least another half a decade. I'm now running through those really good earphones (like the AKG K3003) that I thought posed a legitimate challenge to dedicated CIEMs, and wondering how good they would sound with a set of Snugs on their speaker tips. I have a horrible feeling this could be the start of a beautiful friendship, between my bank account, Snugs, and a host of great earphone brands. +

## DETAILS

### Snugs Custom Fitted Earphones

Price: £159 (replacements: £47 per ear, £79 per pair)

URL: [www.snugsearphones.co.uk](http://www.snugsearphones.co.uk)

Tel: +44(0)1984 640582

### Shure SE846 Sound Isolating Earphones

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URL: [www.shure.co.uk](http://www.shure.co.uk)

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Primare CD31	£600	Primare CD31	£600	Jadis JPL	£1700
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Vitus SCD 025	£9990	Proceed PDP 2 D to A Converter	£390	Krell Evolution 202	£4990
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## dCS Rossini digital player

by Alan Sircom

**A**s any maker of digital audio devices can verify, the last few years have seen a significant change in the way the digital happens, and the digital landscape has been entirely redrawn. If you think back to our review of the dCS Puccini player from 2009 and look at what's changed in the digital world since then, what was then 'state of the art' looks 'out of the ark' in today's world. Clearly, if you are at the vanguard of digital audio development like dCS, it's difficult to stand still, and the new Rossini is the result of this restlessness.

The Rossini is dCS' 'entry point' to the company's digital ethos (the Debussy DAC is cheaper, but it is essentially 'just' a good DAC). That ethos makes a device like the Rossini a sophisticated digital nexus, accepting virtually any digital audio signal you can squeeze, fire, point, pull, or push at it. However, the company is keen to stress it isn't in the DSD 'arms race'; it supports DSD 128, but it questions the need for even higher grade processing in the light of almost no software availability.

Rossini is the first disc player from dCS not to include SACD in its line-up, although the Rossini supports DoP (DSD over PCM). This is an unfortunate by-product of trying to make a digital multistandard player in 2015 because the lack of SACD comes down to a lack of SACD transport and controller chip availability today. Companies like Esoteric have withdrawn OEM sales of transport mechs, in part because Sony has called time on the chips Esoteric uses to read SACD data off discs. Companies like CH Precision, dCS, and Playback Designs are left out in the cold as a result. While these brands have bought stocks of mechs and chips to supply and service their existing top players, building a new model with finite stocks of a key component is not a good idea. But maybe this lack of SACD replay is not as important today, because the Rossini itself comes in two forms – with or without that built-in CD transport. Only time will tell whether audiophiles go for the 'hub' or 'hub+CD' version in greater numbers.

A problem in writing about dCS products is attempting to edit down the technology inside. The company has always been at the forefront of digital audio development, and that means the technologies involved with a dCS player don't conform to regular descriptions. No off-the-shelf Burr Brown or ESS chipsets here. Instead, dCS rolls its own Digital Processing Platform, which includes its patented Ring DAC,

and uses the latest and greatest iteration of that DAC as found in the Vivaldi. This Digital Processing Platform means dCS can implement a multi-stage DXD oversample/DSD upsample schema, allowing the user to experiment with a range of DSD and DSD filter settings.

Connectivity is key for the 21<sup>st</sup> century digital player, and the Rossini is well stocked. There are 'legacy' AES/EBU and S/PDIF inputs, USB inputs (both Type B for a computer, and Type A for a thumb drive), main and loop-through Ethernet connections, as well as a trio of clock connections (two in, one out) and variable balanced and single-ended outputs. Importantly for tomorrow's audio, the Rossini platform is a fully integrated network player. Again not content with an off-the-shelf solution, dCS has developed its own Ethernet streaming front end, and this is fully app controlled.

Those last three words – fully app controlled – are easy to roll out when discussing Ethernet streaming, but the Rossini is available as a CD-player version. App control of a CD player is not as easy as it sounds: bringing 1981's technology into 2015 can be a little like trying to fit a turbocharger to a horse, and writing an app that can control the logic chips of a CD player is no mean feat. That it works as seamlessly as it does, so that you can slide effortlessly between player, network storage, and online streaming services like Tidal and Spotify belies a lot of coding. Sadly, no one tends to notice such things when they are done properly because they become effectively invisible.

There is a new dCS sound, which began with the Vivaldi and continues here in the Rossini. It is a hugely complete sound, proving that analysis and enjoyment are not mutually exclusive. What becomes patently clear in the listening is just how rare that complete package is in reality. Most digital devices tend to fall into somewhere on the continuum, but precious few manage to balance these two seemingly opposing forces with such poise.

This 'completeness' of sound is, of course, exceptionally detailed; detail was always a core strength of dCS players. But this detail is now joined to a sense of cogent musical integrity and coherence that simply beguiles the listener. This applies universally; whether you are listening to Led Zeppelin, Leadbelly, or Lizst. The normal musical snippets we roll out seem trite here, because the Rossini's 'completeness' applies, er, completely. ▶





*“This is because... the Rossini is a better performer than those previous generation players in almost every respect.”*

▶ That 'complete' sound – drawn down from the Vivaldi – would have spelt the death-knell of the Puccini, Paganini, and even the Scarlatti even if the Esoteric SACD transport mech was still freely available. This is because – and I understand this might be of little comfort for owners of those products – the Rossini is a better performer than those previous generation players in almost every respect. The functionality is significantly improved, the connectivity is substantially better, but more importantly, unless you are playing SACD discs the older models just don't sound as good as the Rossini.

I'm going to have to contort a term from photography. What the Rossini offers that is so extremely rare in digital players irrespective of price is what I'd call 'depth of field control'. A photographer might want the whole scene sharp from nearest subject matter to infinity, or just want the subject matter in focus and nothing else. Moreover, they talk about 'bokeh' – the nature of those out-of-focus components, and pay handsomely for lenses with the right number of aperture blades to make sure the scene looks just right. If you transfer that control over the depth in the picture to control over the soundstage, you get what sets the Rossini apart. Other good players 'scale' according to the size of the recording, but the Rossini is one of the very few that has this sense of 'depth of field control' over the soundstage that adds a level of precision that is hard to live without once heard. The best way I can

describe this is it's about absolute integrity to the recording, without adding the word 'slavish' into the mix. Make the jump from some lo-fi recording like 'I See A Darkness' from the album of the same name by Will Oldham in his 'Bonnie 'Prince' Billy' guise [Palace] and you have a claustrophobic small ball of sound that can only be described as "diffuse at the edges"; change that for 'Excuse Me Mr.' from Ben Harper's *Fight For Your Mind* album [Virgin] and you have a tight zone of image precision around the singer, guitar, and bass, but more soft-focus to the drum kit. This sort of depth differentiation is something I've only encountered in a tiny handful of components.

Here's the thing, though. Despite making one of the best streaming front-ends I can think of, despite the excellence of the USB input, and the sublime performance of DSD playback under DoP (as you might expect from the company that first minted the concept), I still prefer the sound the Rossini makes when spinning a disc. I don't think I'm channelling my inner luddite here, and this conclusion isn't that dCS doesn't know how to do streaming – if anything, I'd put dCS' network and online streaming performance at the top of what is currently possible. Rather, it's that CD replay is just more 'organic' sounding than file-based versions of the same. Even the like-for-like WAV file ripped from the disc doesn't sound quite as 'there' as the CD. The problem is the dCS CD replay



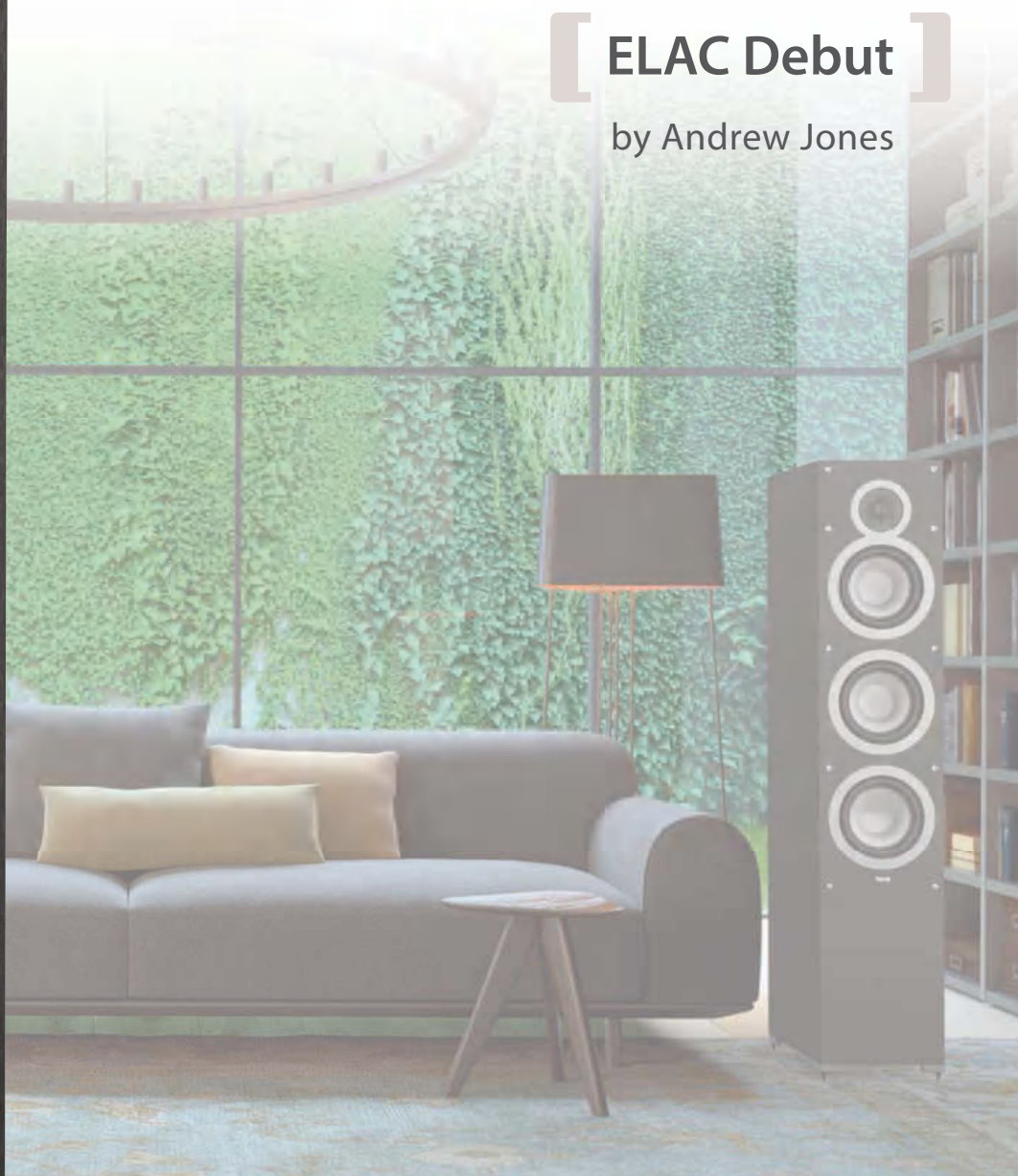


# ELAC

Klang lebt

## ELAC Debut

by Andrew Jones



Debut  
by Andrew  
Jones

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in speaker design joins  
a world-class brand.

*"The ELAC Debut series delivers superior performance thanks to custom made key components, with no off-the-shelf parts. Unlike many more expensive speakers that mix parts-bin drivers, bare-bones crossovers and generic cabinets—every ELAC speaker is built from a clean-sheet design."*

## dCS Rossini Master Clock

The matching Master Clock to the Rossini is a logical upgrade to the 'basic' Rossini. For the longest time, dCS has recommended and supplied Class 1 clocks for its players, and for good reason. This one features two entirely separate phase locked looped crystal oscillators running at 44.1kHz and 48kHz, temperature controlled by microprocessor, and the handshake between Rossini and Clock switches in the correct clock for the sampling frequency of the digital signal (they all run to multiples of those two clock frequencies). Its aluminium design continues and extends the style of the Rossini and when bedded in offers clock accuracy to  $\pm 0.1$ ppm, thanks to a lot of internal multi-stage regulation.

Connecting it couldn't be simpler. There are three BNC sockets on the rear of the clock. Hook up inputs 1 and 2 to the corresponding clock outputs on the Rossini. Strangely, given this is basically just a pair of timing signals and not in the analogue or digital audio chain, the choice of cables makes a difference, although it comes with good basic 75 ohm coax connectors as a fine starting place.

What the Rossini Clock does for the sound is simple. Describing what it does is difficult. Not as difficult as designing the thing, I grant you, but the difficulty in description is in part discussing the scale of the effect, as well as the effect itself. The Rossini is one of the best-sounding standalone digital hubs I know of in sound quality terms, and the Clock improves on that. When you put it in the path of the Rossini, you can hear the enhancement, and when you take it out your very next action will be to call the dealer to buy one.

Put simply, what the Clock does is bring a greater sense of authenticity to an already authentic sound. Sounds in the soundstage are more solidly placed: whether that placement is through natural ambience and careful recording or judicious use of the pan pot, you'll notice the instrument is rock solid in its own physical space in the soundstage. Reverb tails are more clearly delineated, and



*“What the Clock does is bring a great sense of authenticity to an already authentic sound.”*

there is a palpable sense of being in the presence of music and musicians. This is something that the Rossini excels at in its own right, but this 'thereness' is strengthened under the power of the Clock.

Curiously, what might seem like the most obvious benefit of having a precision external clock – improvements to the temporal nature of music, its timing and rhythm – are not uppermost. There is slightly more temporal focus, but the Rossini was already an excellent rhythmic performer in its own right, and as such don't expect big changes to the beat.

The Rossini player isn't hobbled without the Clock. Instead, what the Rossini (on its own) does over lesser players, the Rossini+Clock does to the Rossini. It's not subtle, and there is no going back to a Rossini on its own, even though the Rossini on its own is better than most digital front ends out there, regardless of price.



"To say the Continuum S2 comes highly recommended is putting it mildly – this is the kind of amplifier I could happily live with and never feel the need to upgrade ever again"  
*(Alan Sircom – Editor HiFi Plus)*



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[www.jeffrowlandgroup.com](http://www.jeffrowlandgroup.com)



▶ doesn't just out-perform dCS's take on 'next-gen' audio; it's a universal thing, and using the Rossini as transport to the other DACs in this test (and more besides) pointed to the same conclusion. Every time. As someone who was early to adopt file-based music, this comes as something of a shock.

There is another thing about the Rossini that is a bit of a joy, mindful that I recently negotiated the monumental box-fest that is writing about systems: it's incredibly consistent. The dCS Rossini is instantly recognisable and a similar force for audio good whether it's going into a decent mid-range audio system or something really mighty. And while I'm still not entirely won over by dCS' 'you don't need a preamp' claims, the Rossini does sound good hooked directly to a power amp. OK, so it's unlikely that a player that costs close to £20,000 will front an £800 amp and £1,000 loudspeakers, and that it is expected to be seen in systems costing nearer £50,000 and beyond; but regardless, the Rossini character is stamped across the system. App control makes the player a worthwhile addition to any portfolio, and because it can process virtually any digital format you can think of (SACD discs notwithstanding).

I've not logged enough Vivaldi hours to see where the jumps in performance lie between Rossini and its bigger brother. I'll hand that one over to my colleague Chris Thomas in a long-term listening follow-up in a later edition of *Hi-Fi+* because he has extensive experience with both systems. It seems, however, that although the Rossini is very good in all the ways the Vivaldi stack is good, the full Vivaldi experience raises that naturalness and completeness to another level. The dCS Rossini is more than just a scaled-down Vivaldi, though, and has a beguiling property of its own. What's more, in systems that aren't at the extreme limit of what's currently possible from audio, the Rossini's consistency might make for a better overall performance. Remember that in some of the systems that show what the Vivaldi can do to its best, the cost of connecting those four boxes with audio cable commensurate with its performance is more than a Rossini!

That, in essence, encapsulates what is so good about the Rossini, and it is an encapsulation as I feel I've barely scratched the surface of what this player can do. To better it – especially when partnered with the matching clock (see box) – doesn't just need a serious financial boost to the digital audio stages of your system, it probably needs a better system. The dCS Rossini sets a high standard for digital audio of all kinds today. You may find 'different' but you won't find 'better' at anything even close to this level. The dCS Rossini is a powerful, confident player in all its guises and highly recommended for those fortunate enough to be able to take digital audio to the next level. +

## TECHNICAL SPECIFICATIONS

**Type:** Upsampling CD/UPnP media renderer

**Digital Inputs:** 2x AES/EBU, 3x S/PDIF (1x RCA, 1x BNC, 1x Toslink), USB A and USB B, 2x RJ45 (one network loop out). Accepts data streamed from an iPod, iPhone or iPad via Apple AirPlay

**Digital input precision:** RJ45: FLAC, WAV, AIFF to 24/384, DFF/DSF formats to DSD 128. USB A: PCM to 24/384 or DoP to DSD 64, Asynchronous, USB B: PCM to 24/384 or DoP to DSD 128, Asynchronous, Class 1 or 2 mode. AES/EBU: Singly, PCM to 24/192 or DoP to DSD 64. Used as a Dual AES pair, PCM to 24/384kS/s, DoP or dCS-encrypted DSD to DSD 128. S/PDIF coaxial: PCM to 24/192 or DoP to DSD 64. S/PDIF Toslink: PCM to 24/96

**Supported formats:** PCM, DSD (DoP/DFF/DSF), FLAC, WAV, AIFF, WMA, ALAC, MP3, AAC & OGG

**Analogue outputs:** 1x RCA pair, 1x XLR pair. 2V or 6V rms for full-scale input, set in the menu

**Upsampling Rates:** DXD as standard or optional DSD upsampling

**Filters:** PCM mode: up to 6 filters. DSD mode: 4 filters

**Crosstalk:** Better than -115dB0, 20Hz–20kHz

**Finish:** Silver or Black

**Dimensions (W×H×D):** 44.4×43.5×15.1cm

**Weight:** 15.6kg (17.4kg with CD)

**Price:** £15,500 (network DAC alone), £18,000 (with CD transport)

### Rossini Master Clock

**Type:** Class 1 Master Clock

**Clock Frequencies:** 44.1kHz/48kHz

**Accuracy:** Typically +/–0.1ppm

**Start up time:** Typically 1 minute to rated accuracy

**Word Clock I/O:** 3 independently buffered outputs on 75Ω BNC connectors. Output 1: fixed at 44.1kHz Output 2: fixed at 48kHz Output 3: 44.1kHz, RS232 controllable

**Finish:** Silver or Black

**Dimensions (W×H×D):** 44.4×43.5×6.4cm

**Weight:** 8.2kg

**Price:** £TBC

**Manufactured by:** dCS Ltd

**Tel:** +44 (0)1954 233950

**URL:** www.dcsLtd.co.uk





*"The N1Z is the audiophile's replacement to the computer or the network, because it sounds better than both...The N1Z gets the strongest recommendation."*

*Hifi+ Issue 124*



# MELCO

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*"..sound quality that is a step up from any other network attached music library I've heard...The Melco N1A is a truly impressive piece of equipment ... possessed of a gorgeous sound - it comes unreservedly recommended."*

*Hifi World March 2015*

**VERDICT** ●●●●●●

*"Indeed, in some respects the sound was the best I have yet heard for digital audio replay... It fulfils the objective of providing a simple-to-use 'computer free' hard drive music source with very low noise and jitter."*

*Hifi Critic March 2015*

**HIFI CRITIC  
RECOMMENDED**

*"If you are serious about streaming, this is a very fine one-stop solution to get the very best out of your system."*

*Hifi Choice May 2015*

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Choice  
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# KOG AUDIO

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# Moon Evolution 780D digital converter/streamer

by Alan Sircom

**W**e keep beginning these reviews of state-of-the-art digital products with variations on the theme of 'how the digital world is changing' for a reason: it IS changing. Moon's prestigious Evolution range is perfectly indicative of that change. The digital top spot in Moon's top range used to be held by the 750D CD player, but this year that was ousted by the Evolution 780D, a combined digital converter and network streamer.

CD players – essentially DACs with CD transport mechanisms – remain in the Moon catalogue, but it's possible these players are the last of their line and subsequent generations of Moon digital products will evolve from the 780D (well, an 'Evolution' pun was irresistible). In fact, it's already happening; products that have a direct link to the 780D design brief have already begun to appear in Moon's more affordable NEO range.

Viewed on a surface level, the Evolution 780D is a nine-input digital converter, already next-gen ready thanks to its USB, Ethernet, Wi-Fi, and aptX Bluetooth connections, alongside the optical and coaxial S/PDIF and AES/EBU inputs. It's a dual-differential DAC layout where each of the two ESS9018S Sabre DAC chips sports essentially 16 unique DAC circuits per channel that can support PCM to 24-bit, 384kHz and DSD to quad-speed/256. In other words, it can support bleeding-edge formats, for which there are but a handful of tracks. Nevertheless, the logic behind this is if it can process at this resolution, 24/192 and DSD 64 should be a breeze. While I'm not wholly convinced of the need for this endless specification arms race given the paucity of music available in astronomic-resolution, there doesn't seem to be much sign of a ceasefire yet. Irrespective of file format, the Evolution 780D also features a Femtosecond-grade internal clock, to show jitter who's boss.

Moon has started a move to a new Hybrid Power (MHP) supply in the 780D, a high performance universal Power Supply using conductive polymer parts, high speed digital switching, and analogue linear regulators post stages designed to smooth the DC output. With an increasing number of DAC designs going switch-mode only, which works well for digital stages, it's great to see a digital device take its analogue side just as seriously.

The net result of all this taking power seriously does have its downside – acronyms! The dozen stages of DC voltage regulation include two M-LoVo (Moon Low Voltage Regulation) stages and four I2DCf (Independent Inductive DC filtering) stages. All connected with SimLink comms. And probably a PIAPT (Partridge In A Pear Tree) somewhere, too.

Elsewhere, the 780D is all aircraft-grade aluminium, super-thick PCBs, isolating corners, and the kind of last-a-lifetime, you could drive a tank over it build we have come to expect from Moon's top Evolution range. It also has Moon's trademark huge red LED front panel readout. It features balanced and single-ended analogue outputs; we preferred single-ended, but not by much.

Integral to the 780D is MiND, or Moon intelligent Network Device. Originally a standalone box, designed to allow more conventional DAC devices to talk to local and internet networked audio, MiND is now becoming integrated into the company's latest digital products. MiND was one of the first ways of streaming DSD files over Ethernet, and many still consider it the best in terms of flexibility. In particular, MiND and the accompanying app integrate with network streaming service TIDAL in a way few other hardware companies have achieved. This redefines the term 'seamless' when it comes to integration of local and online music services. The 780D's open-ended design suggests that should the need arise to upgrade the DAC or the MiND stages, upgrades and updates will be made available (and Moon does have some 'form' in providing such updates, so the idea of future updates is not idle speculation).

On the subject of improvements, several of the top tier products in Moon's Evolution range can be upgraded using the company's external 820S power supply. The 780D is no exception, but we didn't have this to hand. Neither, at the time of test, did we have a Moon amplifier to try out the SimLink communications hook-up between the two devices. However, on past experience, this is a wonderfully integrated connection between linked devices, with control surfaces, functionality, equalised level LED dimming, even cascaded power up and power down routines, passed perfectly and effortlessly from product to product. I have no reason to believe the 780D would behave out of the ordinary here. For Moon devices, that is.



*“Music flows from musical theme to theme with such passion and grace on the 780D that it’s hard not to be impressed.”*

► That throwaway end of the last paragraph is actually a pivotal function of Moon’s equipment. Taken alone or together, they work in the way you would expect audio components to work. You don’t need an electronics degree to switch the device on, and you don’t need to pray for a miracle that when you turn it on, it hasn’t permanently locked you out of three-quarters of its functionality. The 780D is an undeniably complex, multifunction piece of electronics engineering, so it’s never going to be as easy to use as a toaster. It requires some installation skills and some understanding of how to create a home network to operate it at its best. If you can’t do that personally, ask your dealer, who will then get his 13 year old son (who can do this kind of stuff in his sleep) to configure and create a network for you. Ultimately, you will end up with some kind of network attached storage, to which you will rip some of your CD collection, before giving up on the whole project and signing up to TIDAL, which you can also do through the network and on the Moon app.

Installation is not – by modern standards – complex, and once your MiND network is up and running, you’ll begin to look at those CD-spinning days with incredulity, rather than nostalgia. It quickly becomes a ‘did I used to do that?’ mindset. I’ve recently started listening to CD anew thanks to the dCS Rossini, and the 780D makes a very fine DAC in and of itself, but it also makes a fine argument for putting CD back in its jewel case and stowing it away because the 780D delivers some of the finest streamed sounds I have ever experienced. CD is still great, and still sounds great, but the 780D extracts the musical marrow from all file types!

Like the 750D CD player before it, the 780D makes music with great authority. The 780D begins with its spatial properties, establishing a fine soundstage of great width and precision. It doesn’t matter what music you are playing here, if it has any kind of stage, the 780D will present it well. I played ‘She Talks To Angels’ by The Black Crowes [*Shake Your Money Maker*, American], which isn’t the first choice for portraying deep soundstage (the guitar and vocals are close mic’d and the rest of the band seems to appear as a thin layer of musicians in the chorus), but the 780D created a surprising sense of dimensionality and solidity to the sound in the room. When you moved over to music with true soundstaging (yes, it’s an audiophile cliché, but Cannonball Adderley’s *Somethin’*

*Else* [Blue Note] is a perfect album to play here), you could place yourself in the studio with the musicians, such is the size and precision of the 780D’s staging properties.

The great thing about the 780D is that it doesn’t have that thin, stark, and forward sound so common to ‘next-gen’ audio equipment at this time. The sound digital produces is extremely detailed, highly coherent, and very articulate, but somewhere in the transition from disc-based to file-based music we seem to have forgotten that music is more than shots; it’s there to be drunk deep. Not here though. The 780D has music wired into its DNA: you don’t listen to minute long ‘Classical Moods’ here – you play Beethoven’s Ninth Symphony [von Karajan, Berlin Phil, DG] from beginning to end, because you are at ease with the music it plays.

There was a word that kept coming back on the notepad with the 780D. The word was ‘graceful’. It’s not used much in audio today because most music replay devices have forgotten its importance, but music flows from musical theme to theme with such passion and grace on the 780D that it’s hard not to be impressed. It’s almost analogue in intent, although this is the wrong term: it’s not trying to be vinyl, and it’s definitely a digital player, just that it has that sense of musical grace (that word again) you hear immediately on vinyl and is oh so rare on digital.

I can see there will be some who like their music with great gusto, who will find this more majestic, graceful presentation not ‘edgy’ enough. On the other hand, there are also those who find a singular obsession with music’s pulse too limiting and crass, and for them the Moon 780D’s abilities to balance tonal, timbral, and rhythmic elements with great evenness hard to resist.

Part of the Moon’s ability to move beyond the rhythmic end of the spectrum is because the next most common word on my note pad was ‘confident’. This is a big, and bold sound, at once comfortable with huge-scale orchestral works and breathy girl-with-guitar songs, and all points between. Dynamics are effortless (to the point where you stop becoming aware of a thing called dynamic range and just listen to the music) and this dynamism, and a good natural sense of melody (without accenting the beat) combined with that graceful overall presentation, makes this an easy digital device to love. ►



$$\Sigma \left( \begin{array}{l} \text{future proof +} \\ \text{benchmark performance +} \\ \text{superlative sound} \end{array} \right) = \text{Rossini}$$



### Future Proof

We are pioneers who are constantly developing new technologies to improve the quality of reproduced sound. Our unique approach to product design means that Rossini can anticipate and support new formats and innovations in audio.



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Every *dCS* product must meet the extraordinarily exacting standards demanded by our military heritage. As a result Rossini delivers levels of consistency and reliability like no other.



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Aria drivers feature a new Zamak (zinc/aluminum/magnesium/copper) basket and tweeters are suspended using Poron, a 'memory foam' material developed for the reference Utopia range which reduces distortion three-fold in critical areas of the audio spectrum.



## Choice

Choose the compact bookshelf 906 or the floorstanding 926. Both are available in Walnut or Black High Gloss finishes with real leather front panels. Designed and manufactured in the heart of France.

*“Check back next year and those early adopter 780D users will be absolutely blissed out. Over the Moon, in fact!”*

► In a way, although the hardware is the power behind the throne, the one element that ultimately makes or breaks a product today are the programs and apps used to interface and control the device. The best sounding DAC with a poor app will fail to thrive. And that's where MiND really comes into its own – the app is so good here, I could almost imagine someone buying the 780D because of the app. The best way I can describe the app is it works the way you would expect a music playing app to work, and it just happens to connect with and control one of the best sounding digital devices you can get. In fact, the Moon does come with a really nice handset with squidgy touch buttons that glow every time you pick it up (it has an accelerometer inside), and eight touch buttons on the front panel, but the moment you power up the app, those elements become redundant.

In fact, the only real limitation to the 780D is that well documented running in period that applies universally to all Moon devices. If you get a demonstration, make sure the store has given the 780D plenty of time to get its act together. That includes not leaving it unpowered for any significant time. When you get it home, it will sound pretty good out of the box. Weeks later, you'll suddenly relax into the 780D's performance more than you have before, and at that point it's about half way there. I've had a few 'wow!' moments along the way with the 780D and – from experience with Moon products – I'm about a third of the way through the whole warming up process. Check back next year, and those early adopter 780D users will be absolutely blissed out. Over the Moon, in fact!

The Moon Evolution 780D is something to get excited about, even if you might never get close to being able to afford one. It deserves that excitement not just because it sounds damn good, not just because it works so well, but also because it shows us all the right way to do audio in 2015. It's a complete digital solution in a world of half-finished audio jigsaw puzzles. It's a template for engineers to create a new generation of products that actually work as they should work, and it's a call to arms for enthusiasts to demand this level of professionalism from the manufacturers, whether you are spending £100 or £100,000. And to those other brands, let's make this abundantly clear: Moon got things very right with the 780D – why can't you do the same? The 780D comes very highly recommended! +

## TECHNICAL SPECIFICATIONS

**Type:** Network streaming DAC

**Digital Inputs:** 1× AES/EBU XLR, 3× S/PDIF (1× BNC, 2× RCA), 1× Toslink S/PDIF, 1× USB Type B, RJ45 Ethernet, Wi-Fi/Bluetooth aerial

**Inputs:** RS232, 12v trigger in/out, SimLink in/out mini-jack

**Analogue outputs:** RCA stereo, XLR stereo, 2.0V rms

**Output impedance:** 100Ω

**Formats supported:** PCM to 32bit, 384kHz, DSD 64, DSD 128 and DSD 256, DXD supported

**Frequency Response:** 2Hz–100kHz (+0db/–3dB)

**THD:** 0.0001% (@1kHz, 0dBFS)

**Intermodulation Distortion:** 0.0001%

**Dynamic range:** 124dB

**Signal to noise ratio:** 124dB (full output 120dB)

**Jitter:** 150 femtoseconds

**Finish:** All black, all silver, silver with black, custom finish to order

**Dimensions (W×H×D):** 47.6×10.2×42.7cm

**Weight:** 16kg

**Price:** £10,500

**Made by:** Moon

**URL:** [www.simaudio.com](http://www.simaudio.com)

**Distributed in the UK by:** Renaissance Audio

**URL:** [www.renaissanceaudio.co.uk](http://www.renaissanceaudio.co.uk)

**Tel:** 44 (0)131 555 3922

# Wadia 321 digital converter

by Jason Kennedy

**W**adia was one of the first companies to make a decent CD player back in the early nineties. It achieved this by identifying that jitter was a major source of problem for digital audio, a fact that was subsequently taken onboard by the rest of the industry and is now a standard consideration when designing DACs. Wadia were prepared to think outside the box back then and has continued to do so with the Intuition power DAC, which is a combined converter and digital power amplifier in a very distinctive clamshell case. Wadia's first creation was a DAC, the Digimaster 2000 Decoding Computer and the technologies developed in that DAC remain at the core of Wadia's models to this day.

The Wadia 321 is enormous – it wouldn't fit on my Townshend Seismic rack because the 20 inch depth meant that the small feet fell off the edge. But it's a lovely piece of kit with high build quality and very attractive casework, large radius corners on the diecast aluminium surround, and a black glass top surface through which the Wadia logo glows in what is a distinctly Apple style. Inside the box there is a lot of space as you might imagine, but it has the same footprint as Wadia's m330 Media Server and a315 and a340 digital amplifiers that might be used to partner with it.

There is plenty of space on the back panel for a good array of in and outputs, these include coax and Toslink for S/PDIF connections and USB for computers and the like. Outputs are available in balanced and single ended form and both variations can be connected directly to a power amplifier, another feature that Wadia pioneered back in the day. The actual digital to analogue

converter consists of eight DAC channels which combine to produce a genuinely balanced output for minimum noise and maximum dynamic range.

The 321 is a couple of years old now and this shows in the absence of DSD, the current flavour of the month in converter compatibility. Instead, the 321 is a PCM based unit that's limited to 24-bit/192kHz, which are pretty standard numbers for any modern DAC. This is not commercially very attractive to a world obsessed by DSD, but it's important to remember that specs do not indicate sound quality. Editing is 'difficult' in DSD, which is part of its appeal to the purist of course, but in practice it means that any commercial release on the format will have been in PCM at an early stage of its creation. Moreover, DSD can have high frequency noise issues, and even if the actual noise is out of the audioband, as high sampling rates have shown us, what goes on up there can be heard by mere mortals who have maximum 20kHz high frequency hearing. The reason it doesn't offend many is that it is harmonious, and a bit like the harmonic distortion of valves; some feel that it adds to the end result.

Perhaps the 321's most serious omission is of a headphone output. As you will doubtless be aware the headphone market has exploded over the last few years and it must be quite difficult to sell a high end DAC that cannot drive them. Both the omission of a headphone amplifier and DSD support show just how fast moving this sector of the audio world has become, a 2015 version of the Wadia 321 would include such things as standard.\*

The controls on the 321 include volume, input, and setup, the latter consisting of firmware version display and the option to disable auto power off which kicks in after 30 minutes if left enabled. I had expected an option to switch between fixed and volume controlled output, but that is just a matter of maxing the output. The only other features are display dim, mute, and phase control via the remote handset. The display is pretty informative for a DAC, showing input, sample rate, and volume level in large dot matrix characters. If you access this DAC using its USB software control panel (in the Windows driver) it's possible to change latency and sample rate. You can select whether the USB input handles the signal natively, maintaining the incoming sample rate, or upsamples it to 32/192 as is the case with S/PDIF inputs.

I used the Wadia 321 with a Melco N1A digital transport; this has both Ethernet and USB outputs and by sending the network connection via a streamer (in this instance a Moon MiND) it is possible to create a coaxial digital output from the same source. Having the two options proved quite revealing of the differences between the coax and USB inputs on the Wadia, which were not small, but I should add that USB travelled along cables from Vertere and CAD while the S/PDIF signal took the considerably pricier route of Chord Sarum Super ARAY.

With the coax input Joni Mitchell's rendition of 'The Man I Love' [Gershwin's *World*, Herbie Hancock, Decca] had all its poignancy thanks to excellent stage



depth and creamy mids and highs. There is a slight but discernible polish to the presentation that doesn't stop brass from rasping or guitars from screaming but takes away any remnants of dryness in the digital stream. So the snare drum has snap and the groove is good and taut on Herbie's version of 'It Ain't Necessarily So' from the same album. The piano is strong yet avoids the tendency to glare that some digital sources produce.

Image depth is particularly good, the 321 recreates properly three dimensional sounds in a soundstage that reflects the nature of the recording. So the brass, piano, and rhythm section on *Gershwin's World* is properly in the room, while the solo piano on Javier Perianes rendition of Manuel Blasco de Nebra's Piano Sonatas 1-6 Op.1 [Harmonia Mundi] is in the space behind the speakers with all the reverberation characteristics of the room it was recorded in.

Image depth is the main area where better digital devices show their strength, it is not, after all, just a case of there being more 'air' or openness in the sound; there is more space for the instruments and voices to take shape within. This means you hear more of the character of each and there is less tendency for one to mask or muddle another. The importance of this ability becomes clearer with denser music. Almost any DAC can make a voice and guitar sound good, but when there is an orchestra or a jazz band playing complicated rhythms only the better devices can present the music in an engaging way that let's you hear what each element is doing in the context of a coherent whole.

With the USB input the Wadia is not quite so strong, the degree of resolution is lower, and the image loses some of its depth. There is plenty of



*“This means you hear more of the character of each and there is less tendency for one to mask or muddle another.”*





► height, and width and depth is still good, but the comparison with coax shows that it could be better. That said, I did enjoy all sorts of music with this input, from Boris Blank's 'Electrified' (*Electrified*, Polydor) with its deep, powerful bass, to the full-scale orchestra of Mozart's 'Violin concerto in D major' (Marianne Thorsen, TrondheimSolistene 2L). This last exemplified the openness that this DAC brings to USB sources but also its relatively flat, diffuse nature compared to the coaxial alternative. As noted, I tried different USB cables to see if this might be altered, but it remained much the same. I also tried a different, much more down to earth Ethernet cable to the streamer, but the dimensionality remained much stronger with coax. The thing that could make the difference is the USB source, and the Melco is very good in this regard, but it can be bettered by its brother, the N1Z, for instance.

Fortunately, both inputs deliver a degree of musicality that makes you want to listen regardless of the presentation. Coax is an easier listen with dense material, but the Melco is not exactly taxing either.

I also contrasted the Wadia's direct output with routing it through a preamplifier – my trusty Townshend Allegri. This revealed that digital volume controls still have their limits, and whacking the DAC's output up to max and using the preamp brought quite significant rewards in terms of dynamics, drive, and solidity of stereo image. My most positive experiences with this converter were had with the Allegri in line. And they were very positive indeed. This DAC is not just good at resolving differences between inputs, it's even better at getting to the heart of the musical matter. Some DACs are incredibly transparent, but a shade amusical; this Wadia is revealing of all the elements that make a piece of music come alive in front of you. It has high resolution – in the full meaning of the word – so whether you want to play Debussy or Daft Punk it can do so in a spine tingling fashion. It may not have all of this season's most fashionable accoutrements, but it will make your music no less enjoyable than DACs that do, and possibly, dare I say it, more so because of their absence. +

*\*As we were going to press Wadia announced that its upcoming and not-yet-released di322 DAC will feature both DSD compatibility and a headphone amplifier. We hope to test the new di322 as soon as the product is released.*

## TECHNICAL SPECIFICATIONS

**Type:** Solid-state high-resolution PCM digital-to-analogue converter/preamplifier.

**Digital Inputs:** Two Coaxial, two Toslink, and one USB 2.0

**Analogue Outputs:** One stereo single-ended (via RCA jacks), one balanced (via XLR connectors). Both outputs are level variable

**DAC Resolution/Supported Digital**

**Formats:** All PCM from 44.1 kHz to 192kHz with word lengths up to 24-bit

**Frequency Response:** 4Hz – 20kHz, ± 0.1 dB

**Distortion (THD):** 0.002%

**Output Voltage:** 8Vrms at maximum

**User Interface:** Wadia remote control, dot matrix display

**Dimensions (HxWxD):** 86 × 454 × 508mm

**Weight:** 11.4kg

**Price:** £2,798

**Manufacturer:** Wadia Digital LLC

**Tel:** +1 (607) 723-3539

**URL:** [www.wadia.com](http://www.wadia.com)

**UK Distributor:** Absolute Sounds

**Tel:** 020 8971 3909

**URL:** [www.absolutesounds.com](http://www.absolutesounds.com)



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"I was struck by the claim, made by PS Audio's CEO Paul McGowan, that the processing done by the DirectStream results in superior playback of CDs. I heard more musical detail from CD than I had previously had. This detail was genuinely higher resolution manifested by greater differentiation among the sounds of instruments and rhythmic patterns. Quite amazing".

**Robert Deutsch – Stereophile Feb 2015**



# Questyle Audio Engineering QP1R high-resolution digital audio player

by Chris Martens

**Q**uestyle Audio Engineering, led by audio engineer Wang Fengshuo (Jason Wang in Anglicised form), is an innovative manufacturer of high-performance DSD-capable DACs, preamps, power amps, a 5GHz wireless hi-fi system, and very high quality, portable high-res DAPs (Digital Audio Players). Unlike some of its competitors in these categories, however, Questyle is less about the blind pursuit of features and functions for their own sake and more about the pursuit of very serious sound quality. For this review, we chose Questyle's recently released flagship QP1R portable digital audio player (£660, or \$899), which packs a formidable amount of audio technology into an elegant package about the size of a typical smartphone.

The QP1R, offering self-evident quality of build, sports a tasteful, CNC-machined aluminium enclosure that is treated to an elegant bead-blasted matte finish and given either a Space Grey or Gold anodised finish. The front and back panels of the player are covered in durable and attractive Gorilla glass, with the front panel provides a 43 x 39mm full-colour display screen plus what Questyle terms a "twin steering wheel" control system that combines some aspects of the familiar Apple iPod control wheel system with a series of touch-sensitive panel surfaces that provide additional control options.

The top edge of the player provides a protected volume control knob (said to be patterned after the crown of a high-end wristwatch), plus two recessed jacks: a headphone output jack and a combined line out/optical jack. The right edge of the player presents a simple, pushbutton On/Off switch. Finally, the bottom edge of the player provides two recessed MicroSD memory card slots, plus a mobile universal Micro USB jack that is used for uploading music files and for charging the QP1R's 3300-mAh lithium-polymer battery. The player comes standard with 32GB of memory and can accommodate up to two 200GB MicroSD cards for even more music storage capacity, and a Micro SD is also used for installing periodic firmware updates. All in all, the player exudes an elegant, purposeful vibe and conveys a substantial and pleasingly high-quality feel

(but be forewarned: if you let your friends play with the QP1R, they may not want to give it back).

Readers familiar with Questyle's full-size audio components will be pleased (and perhaps surprised) to find that many of the technologies employed in those bigger units have found their way into the compact QP1R. Specifically, the DAC section of the QP1R borrows certain elements such as the 3X clock design from the firm's flagship CAS192D DAC. The QP1R uses Cirrus Logic's top-shelf CS4398 DAC device to support native decoding of DSD64 and DSD128 files, as well as native decoding for PCM files at rates up to 24-bit/192kHz. Virtually every digital audio file format imaginable is supported, making the QP1R one very versatile portable digital audio player.

The amplifier section of the QP1R uses Questyle's patented, signature CMA (current mode amplifier) circuit topology as pioneered in the firm's CMA800R-series headphone amplifier. Further, the amp uses a pure Class A circuit comprised entirely of discrete components. The benefits of a current mode amplifier, says Questyle, involve the fact that the circuit's slew rate, "grows linearly with input signals, without any limit," meaning that the circuit can safely apply very high-speed negative feedback (feedback hundreds of times faster than in a traditional voltage amplifier) while yielding transient intermodulation distortion (TIMD) "so ultra low that it can hardly be tested." As a result, the amplifier offers wide bandwidth, extremely low distortion, and nearly complete freedom from annoying TIMD artefacts, or sonic stridency or edginess.

With digital audio players, a product's user interface can often spell the difference between a winner and a dud, and I'm happy to say the QP1R has an attractive and intuitive interface that most listeners master in a matter of minutes. The primary user controls are simple: there is a ring-shaped metal control wheel at the centre of which is a matching metal pushbutton. As in an Apple iPod, the pushbutton has multiple functions, including "turn on the display screen", "select the album or track shown", or "start/stop playback", depending on the context at



hand. Questyle's 'steering wheel' is likewise a context-sensitive control that lets users rapidly scroll through menu, song, album, artist, genre, playlist, or track selection options.

Surrounding the wheel/pushbutton controls are four touch-sensitive 'switch zones' in the unit's Gorilla Glass faceplate. The clearly labelled switches support four frequently used functions: go-to-the-home-menu, go-back-one-menu-level, track forward, and track backward. More so than many DAPs I have tried, the QP1R proved exceptionally easy to learn and use—even for newcomers (many of whom said they felt the player's interface reminded them of the controls for an Apple iPod).

Two of the most interesting menu options are software selectable master gain settings (offering Low, Medium, and High-gain options) and user definable EQ settings (the QP1R provides a ten-band graphic equalizer and allows users to store two separate banks of EQ pre-sets). Overall, the QP1R

interface is a joy to use, even though the player's high-resolution display screen often presents miniaturised text too small for aging eyes. Thankfully, my own eyeglass prescription is a recent one, so I had no problems with the Questyle's screen, though I noticed some friends and colleagues squinting at the unit in attempts to read the fine print.

Now we come to the important part: the sound. Here is what I discovered. Where some DAPs, most notably the Astell & Kern AK380 reviewed in issue 127, focus on an almost hyper-precise sound of pristine clarity and purity, others tend more toward a warm, inviting, hearty, and organic sound. The QP1R falls in that latter camp, but with two important twists. First, unlike other warmth-orientated players, the QP1R in no way sounds softly focussed or lacking in resolution or detail. On the contrary, its focus is tack-sharp and its ability to resolve fine textural and transient details is fully competitive with the best in its genre. ▶



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*“The QP1R literally made me jump, which tells you precisely what sort of dynamic acuity and impact the Questyle has on offer.”*

► Second, and again unlike many other organic-sounding digital components, the QP1R does not soften, underplay, or round off either transient sounds or dynamic contrasts in the music. Instead, the Questyle renders transient sounds with sharply defined (although never exaggerated) leading edges, while also giving dynamic contrasts, including crescendos and decrescendos large and small, their full due.

To appreciate what I mean, listen to ‘Walking On The Moon’ from The Yuri Honing Trio’s *Star Tracks* [Jazz in Motion], noting in particular the dynamic contrasts heard near the beginning of the track. The song opens with what will prove to be a series of brief, sharp, and widely spaced percussion figures in between which we have a very soft and gently repetitive acoustic bass motif that will gradually build in intensity over time. But as the song begins, the contrast between the bass and the drums is so stark and so powerful that, when I first heard the song through my Westone CIEMs as powered by the QP1R, I experienced an abrupt, involuntary ‘startle’ reaction when the fierce ‘pop’ of the drums burst forth from the monitors’ earpieces. That’s right; the QP1R literally made me jump, which tells you precisely what sort of dynamic acuity and impact the Questyle has on offer.

All that is ‘missing’ in the Questyle—and I for one am profoundly glad that it is missing—is the subtly cold, clinical, ‘antiseptic’ quality that some hyper-analytical players manage to impose upon the music. In contrast, the Questyle offers a sort of best-of-two-worlds sound: a sound that is at once fascinating, exciting, and endlessly rich in detail, yet at the same time inviting, comfortable, and, yes, relaxing. Another way of stating this is that some players bowl you over with spectacular detail and definition for a few tracks, but soon leave you ready to turn things off and to go do something else; the Questyle, on the other hand, is a player that pulls you from track to track, and recording to recording, for hours on end.

A great example of this detailed yet eminently listenable quality in action would be the title track from Alison Krauss and Union Station’s album *Paper Airplane* [Rounder]. Ms Krauss’ voice is often cited as a near perfect example of the famously ‘high and lonesome sound’ so beloved of Bluegrass music aficionados. However, the sad truth is that through many DAPs, DACs, and amps, Krauss’ voice often winds up sounding not only ‘high and lonesome’, but also

‘bright, dry, and shrill’, which obviously is not a good thing. Happily, the QP1R captures the high, pure, sweet, and yet plaintive tonality of Krauss’ voice, preserving the breathy textures that are characteristic of her sound, but avoiding the many sonic pitfalls that, with other amp/DACs, often arise.

Two points worth noting are that, owing to its software selectable master gain settings, the QP1R is more than quiet enough for use with high-sensitivity CIEMs, yet it also has enough dynamic ‘oomph’ to yield usable and satisfying volume levels with comparatively power-hungry planar magnetic headphones. Frankly, you wouldn’t necessarily think the QP1R would work all that well with full-size headphones, because—on paper—its power output specifications are not all that impressive (maximum output is quoted as 1.9V with power output of just 40mW at 32 Ohms). Nevertheless, the QP1R amp section sounds terrific at each of its gain settings, offering freedom from noise with finesse and punch aplenty with my very sensitive Westone ES60 custom-fit in-ear monitors, while also serving up a potent and highly nuanced sound with my big HiFiMAN HE 1000 planar magnetic headphones. The only ►



*“The QP1R drove the HiFiMAN HE 1000 headphones with unflagging authority and vigour.”*

- caveat I would mention is that, when push comes to shove, the QP1R may not have sufficient power to probe the upper output limits of some of today's more demanding full-size headphones.

In most settings, with most headphones, and with most types of music, however, the QP1R offers entirely ample output. As a test, I tried playing ‘Jazz Variants’ from the O-Zone Percussion Group’s *La Bamba* [Klavier] with the Questyle driving my reference HiFiMAN HE 1000 headphones. Now ‘Jazz Variants’, as many of you know, is a supremely colourful and at times explosively dynamic and demanding percussion extravaganza. But even on this torture test, the QP1R drove the HiFiMAN HE 1000 headphones with unflagging authority and vigour, albeit with its volume control turned up nearly all the way to the stops.

Are there any drawbacks prospective QP1R users might wish to know about? I can think of only a few. First, listeners seeking higher memory capacity, greater decoding flexibility (e.g., 32-bit/384kHz decoding), broader connectivity options, or a more extensive set of add-on accessories might be happier with something like Astell & Kern’s very expensive AK380 player (although it is worth bearing in mind that the AK380 sells for more than three times the price of the QP1R). Second, Questyle needs to extend the maximum number of tracks the QP1R’s internal database can manage in order to keep pace with the very high capacity memory cards now coming to market (this is said to change in the next firmware update). Finally, the QP1R’s 4-to-8-hour battery recharge time is longer than some might wish. Apart from these very minor issues, however, the QP1R is an absolute gem.

Over the time it has been with me, Questyle’s QP1R has gone from being an interesting and compelling review subject to becoming one of my favourite go-to reference tools for evaluating virtually any type of earphone, CIEM, or headphone. The player’s fit, finish, and build quality are simply exquisite, which comes as no surprise given that the QP1R is built by Foxconn—the same firm that builds Apple’s products and the Sony PS4. In turn, the Questyle’s sound quality is remarkable, which leads me to think the firm is on to a very good thing with its signature current mode amplifiers. Finally, the QP1R may be the only legitimate top-tier DAP contender that is offered at a near mid-fi price, which means this terrific player must be considered an outright bargain for the quality on offer. +

## TECHNICAL SPECIFICATIONS

**Type:** High-res portable digital audio player/DAC

**Inputs:** Built-in 32GB music library. Two MicroSD memory card slots (supports cards up to 200GB)

**Outputs:** Stereo analogue line out and optical S/PDIF output (via combo 3.5mm output jack/optical output jack), single-ended headphone outputs (via 3.5mm mini-jack)

**Firmware:** Updates via Questyle-supplied downloads

**DAC:** Cirrus Logic CS4398

**Supported Formats:** WAV, FLAC, ALAC, APE, AIFF, ADPCM, LPCM, MP3, WMA, WMA Lossless, OGG, AAC, DFF, and DSF

**Sample Rates:**

PCM: 44.1–192kHz, 16/24-bits

DSD: DSD64, DSD128

**User Interface:** 43 × 39mm colour screen, twin ‘steering wheel’ control system

**Frequency Response:** 20 Hz–20KHz, ± 0.1dB

**Output Levels:**

High gain: Up to 1.9V rms

40mW @ 32 Ohms

12 mW @ 300 Ohms

**Middle-level gain:**

Up to 1.0V rms

31mW @ 32 Ohms

3.1mW @ 300 Ohms

**Low gain:**

Up to 0.53V rms @ 32 Ohms

Up to 0.51V rms @ 16 Ohms

8.8 mW @ 32 Ohms

16.3 mW @ 16 Ohms

**THD + N:** 0.0006%

**Battery:** 3,300mAh, Li-Polymer battery

**Playing time:** 8–10 hours

**Recharge time via USB @450mA:** 8 hours

**Recharge time via 2A charger:** 4 hours

**Dimensions (H × W × D):** Not specified

**Weight:** Not specified

**Price:** £660 (UK) or \$899 (US)

**Manufacturer Information:** Questyle Audio Technology

**Tel:** +86-755-82835670

**International distributor:** Questyle North America Inc.

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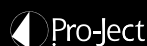


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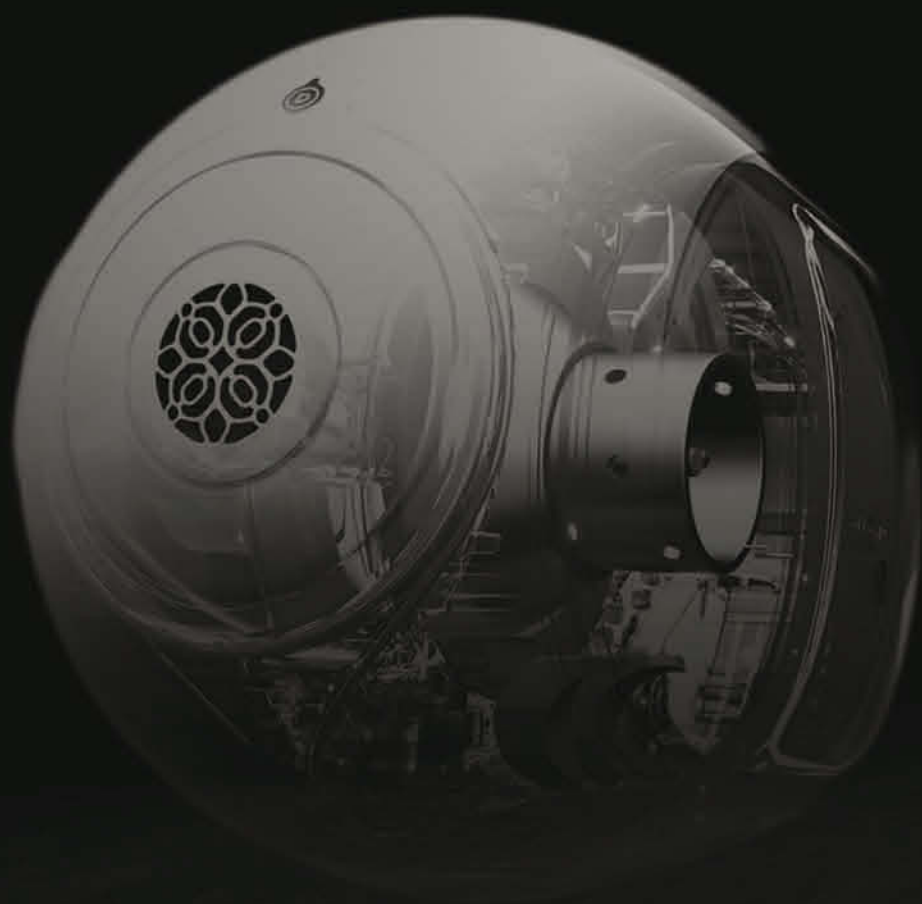


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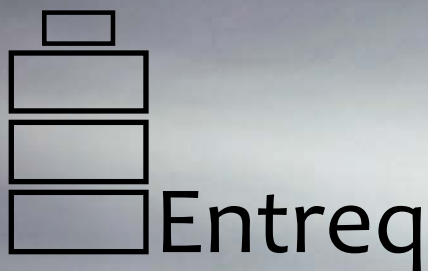
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# Merging NADAC digital converter

by Alan Sircom

**M**erging might not be one of those names that trips off the audiophile tongue, but if you scratch the surface, this Swiss company has one heck of a pedigree. The company is extremely well known in the high-end pro audio world and Merging's Pyramix Virtual Studio suite is the gold standard in album publishing and mastering. Let's put it this way; unless your music collecting came to an abrupt end a few years ago, the chances are some of your best-loved recent albums were recorded or mastered using Merging's Digital Audio Workstations.

Perhaps more relevant given the NADAC tested here, the best studios around the globe often feature Merging's Horus or Hapi 'analogue sections' – robust, network-enabled multichannel DACs, designed for optimal conversion in monitoring and analogue applications in the sort of studios where they bandy around terms like 'mission critical'.

The networked Merging NADAC is close to a consumer version of the Horus and Hapi converters used in those studios, and as Pyramix is *the* DSD recording system (developing DXD in collaboration with Philips in the process) it's little wonder the NADAC is very DSD-friendly. Using the super-robust RAVENNA audio-over-IP networked audio in place of UPnP or USB/DoP, the NADAC is the closest you'll get to the sound of DSD in the place it was mastered, with phenomenal detail and soundstaging. NADAC even allows completely independent control of the built in headphone amplifier, even to playing entirely separate music files.

The domestic NADAC comes in two flavours – two and eight channels. The logical choice for a two-channel audiophile is not automatically the best one, especially as there's less than a grand between the two. In fact, the NADAC is built around the high-performance eight-channel ESS Sabre ES9008S D/A converter, and in the NADAC's eight-channel guise, these

channels can be summed into respective left and right digital outputs from the menu. Summing eight-into-two should give slightly superior linearity, a greater dynamic range and a lower noise floor over the two-channel only version. We tested the eight-into-two configuration.

Because the NADAC runs genuinely balanced outputs, you can also use the eight channels to drive stereo balanced lines around the house, for example. Because it's very much a network-enabled DAC (actually, if we are being brutally honest, the NADAC is so linked to its network, the point where 'network-enabled DAC' ends and 'the best dirty great sound-card in history' begins is very blurred here), the single AES/EBU, and S/PDIF coaxial and optical inputs are very much on the 'legacy' side of things. It does, however, include a word clock input, which is again a nod to its studio heritage.

The clever thing about the NADAC's network robustness is it makes the converter hugely capable, flexible, and load tolerant. You can stream different music to the line-level outputs than to the headphone sockets, and you can configure the DAC as a network preamplifier, or assign full scale output to the





*“Merging takes a more belt-and-braces approach to digital system design than every other domestic DAC on the market.”*

- ▶ line outs, but retain volume control over the headphone socket, all of which is software driven from the small, but surprisingly informative, front panel.

The downside to this call for network robustness – in fact, the sole downside to the NADAC in a domestic setting – is Merging takes a more belt-and-braces approach to digital system design than every other domestic DAC on the market. This is not deliberate obfuscation and the reasons for this uncompromised approach is predicated on good, solid digital engineering you need to perform when you are building converters for broadcasters who demand electronics that are not fazed by any environment. However, this means there's no USB port fitted to the NADAC because Merging suggests USB isn't as fault-tolerant under static electric discharge: the level of static discharge we're talking about here would effectively destroy most computers anyway, but in a studio

is designed for large scale, low latency, and highly stable audio transmission across Gigabit Ethernet LAN. This is fantastic news, because your audio replay is dropout-free, and used with a wireless router and any device with a web browser, fully remote controlled. However, RAVENNA demands a wired network, fixed IP addresses, and managed switches, which limits the number of options open to the end user and raises the typical cost of the audio Ethernet network itself. That being said, if you are spending more than £7,500 on a DAC, then spending £150 instead of £50 per network switch is no biggie, and Merging's website has a list of recommendations. Installing a RAVENNA-compatible network is entirely possible for those without a black belt in TCP/IP, but if you are more used to constructing *ad hoc* domestic networks, the uncompromising nature of that RAVENNA backbone is shifting up several gears. In a similar vein, the NADAC supports PCM (up to 24 bit/384kHz precision), DXD, and DSD 64, 128, and 256. That's it: it doesn't upsample, it doesn't over-sample, and it doesn't play MP3. In short, it's refreshingly resolute.

This shouldn't be considered a criticism of either RAVENNA or the NADAC. Our plug and play domestic network infrastructure perpetually hovers on the brink of falling over, and that network robustness can only be guaranteed by using a system that takes RAVENNA's belt-and-braces approach. And it comes from a place where 'have you tried turning it off and turning it on again' would involve three hours of powering down and rebooting a whole studio. If you want that kind of absolute reliability in your networked audio replay,







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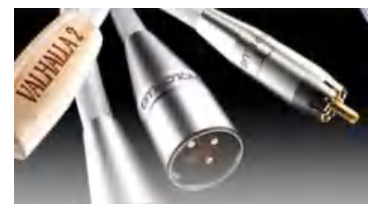
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## Raidho acoustics



## SCANSONIC



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*“Only a tiny number of handful of digital devices I’ve heard manage to combine all those virtues without a significant downside.”*

► OK, close scrutiny does suggest there are a few minutes of getting to optimum thermal operating temperature, but the improvements are minimal. The test NADAC arrived fully run in from several audio shows, so we cannot speak as to its need for ‘running in’, but judging by its no-nonsense demeanour in general, I’d imagine such concepts are alien to the NADAC. It just works!

Just as professionals use its rack-mounted brothers to act like a searchlight on the recording, so the NADAC acts on both their work and, although a significantly lesser extent, the system. The engineer puts a microphone out of place, or maybe goes a little too valve-syrupy in the choice of microphone preamp (the words ‘tube mic pre’ are all the rage in the studio world right now) and you’ll hear it. Maybe not with quite the stark surgical precision of a control room, but that comes down to our choice of partnering equipment. Nevertheless, what you get from the NADAC in your system is a level of musical focus and shading that is extremely rare in audio.

The chances are, in listening to this, you’ll reach for a high-resolution recording, and very probably something out of 2L’s

excellent catalogue: it actually doesn’t matter which 2L recording, they are all routinely excellent. However, with the NADAC in place, you hear why they are so good and how sophisticated Morten Lindberg’s recording techniques are. Nothing is left to chance in the studio, and nothing is the slightest bit out of place. Once you begin to discover that Lindberg has a Merging DAC in his arsenal, and uses it to ensure nothing is left to chance, you begin to understand how good the NADAC is at communicating the intent of that engineer. Move slightly south to the Netherlands, and all those remarkable DSD recordings from The Spirit of Turtle and you get the same effect, for the same reasoning. It’s not just classical music, it’s not just DSD, and it’s not just the latest output from European studios that benefits from using the NADAC: this converter is so transparent to source, you can hear deep into any recording you pass through its curvy case. Yes, there are DACs with a more easy presentation than the NADAC, but this usually comes at the expense of softened transients or a rolled off top-end. Only a tiny number of digital devices I’ve heard manage to combine all those virtues without a significant downside, and the NADAC is the most affordable DAC on that select list.

If I give the impression this is best used for Pyramix-made material, or that all that detail makes NADAC a converter of stark and barren honesty, that is far from the intention. You can – and will – point the NADAC at all kinds of musical genres and come away impressed at the results. At least, impressed by the mix if it’s a good mix. The NADAC is extremely demanding of source material and doesn’t suffer excess compression gladly. If a recording is bright or topky it will let you know, and if a recording is made with thumpy, lumpy bass, you will hear thumpy, lumpy bass. Interestingly though, it’s not so demanding that it will make these recordings unlistenable, and cuts through the mix well. Listening to less well-recorded music through the NADAC is more like writing a report card on the recording than limiting your listening. ►



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# Streaming Power

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*“The honesty of the Merging device simply makes it seem like it is playing music totally unconstrained by the electronics.”*

► When the recording is good and the music is great, though, the NADAC is a joy to listen to. The honesty of the Merging device simply makes it seem like it is playing music totally unconstrained by the electronics. ‘Welcome To My World’ by Depeche Mode [*Delta Machine*, Mute] is a perfect example of this, with its powerful and deep synth bass starting and stopping sharply in the verses it’s a striking piece of demonstration-quality audio and that comes across perfectly here. However, with heavy string and choral sounds, and Gahan’s large-scale bombastic vocals, this track can also turn into a loud mess during the crescendos, but on the NADAC remains on track and both enjoyable and dynamic.

There’s one last box to tick – the headphone amplifier. This can be run as an entirely separate stream to what’s playing through the rear panel outlets, and in set up you can assign fixed output to the rear panel feeds, and variable to the headphone amp (using the controller on the front panel as a volume knob). I also love the idea of having separate 3.5mm and ¼” jack sockets; they are identical in performance, but having both saves scrabbling round for an adaptor. The headphone amplifier itself is excellent, retaining all the precision, detail, and transparency of the line outputs. It isn’t the most powerful of headphone amps, and those determined to drive torturous, no quarter given headphone loads might be better served using one pair of those eight XLR outputs to drive the custom-made dedicated headphone amp of their choice, but as a one-box solution, there aren’t many devices that will better it. Once again, Merging’s pro roots are showing here, as it makes a fine partner to detail-orientated headphones.

The NADAC shows its true colours in the headphone space in a way. Not because of sound quality or drive potential, but by virtue of how close to the NADAC you will likely be when using headphones. Although it is also browser controlled, its navigable on-screen menu system is shown in an inch-square front panel in tiny legends, that only the eagle eyed could see beyond arm’s length. If you are using the control surfaces and display on the NADAC, you need to be very close to the DAC. Headphone close.

The Merging NADAC has an important tale to tell audiophiles – it shows us that what the pros really work with is really good quality equipment, after all. Moreover, it makes a good case for saying RAVENNA should be more common in domestic audio. If it were, the NADAC is the kind of DAC I could seriously envisage using as a reference point. The Merging NADAC is about the most accurate and precise digital listening tool I can think of. Very highly recommended. +

## TECHNICAL SPECIFICATIONS

**Type:** Open-Standard Network  
Attached DAC

**Digital inputs:** Ethernet (RAVENNA/AES67) on RJ45 connector, AES/EBU XLR, S/PDIF Toslink and RCA Phono, word clock input on BNC connector

**Analogue outputs:** 2/8 XLR outputs, 2/8 RCA outputs, ¼” and mini-jack headphone sockets

**Precision:** S/PDIF to 24 bit/96kHz PCM; AES/EBU to 24 bit/192 kHz PCM; Ethernet to 24 bit/384kHz PCM, DXD and DSD 256 maximum

**Formats supported:** PCM, DXD, DSD

**Impedance:** 40Ω (XLR and headphone output), 20Ω (RCA)

**Max. output level:** 6.1Vrms (XLR), 2.1Vrms (RCA), 4Vrms (headphones)

**THD+N:** 0.00022% (multichannel XLR and RCA), 0.00016% (stereo XLR), 0.0002% (stereo RCA), 0.00028% (headphones)

**Dynamic range:** 124dB(A) multichannel XLR, 130dB(A) stereo XLR, 120dB(A) stereo XLR, 123dB(A) stereo RCA and headphones

**Dimensions (WxDxH):** 43.5x43.5x9.5cm

**Weight:** 11kg

**Price:** £7,640 (2ch), £8,400 (8ch)

**Manufactured by:** Merging

**URL:** [www.nadac.merging.com](http://www.nadac.merging.com)

**Distributed in the UK by:** Emerging

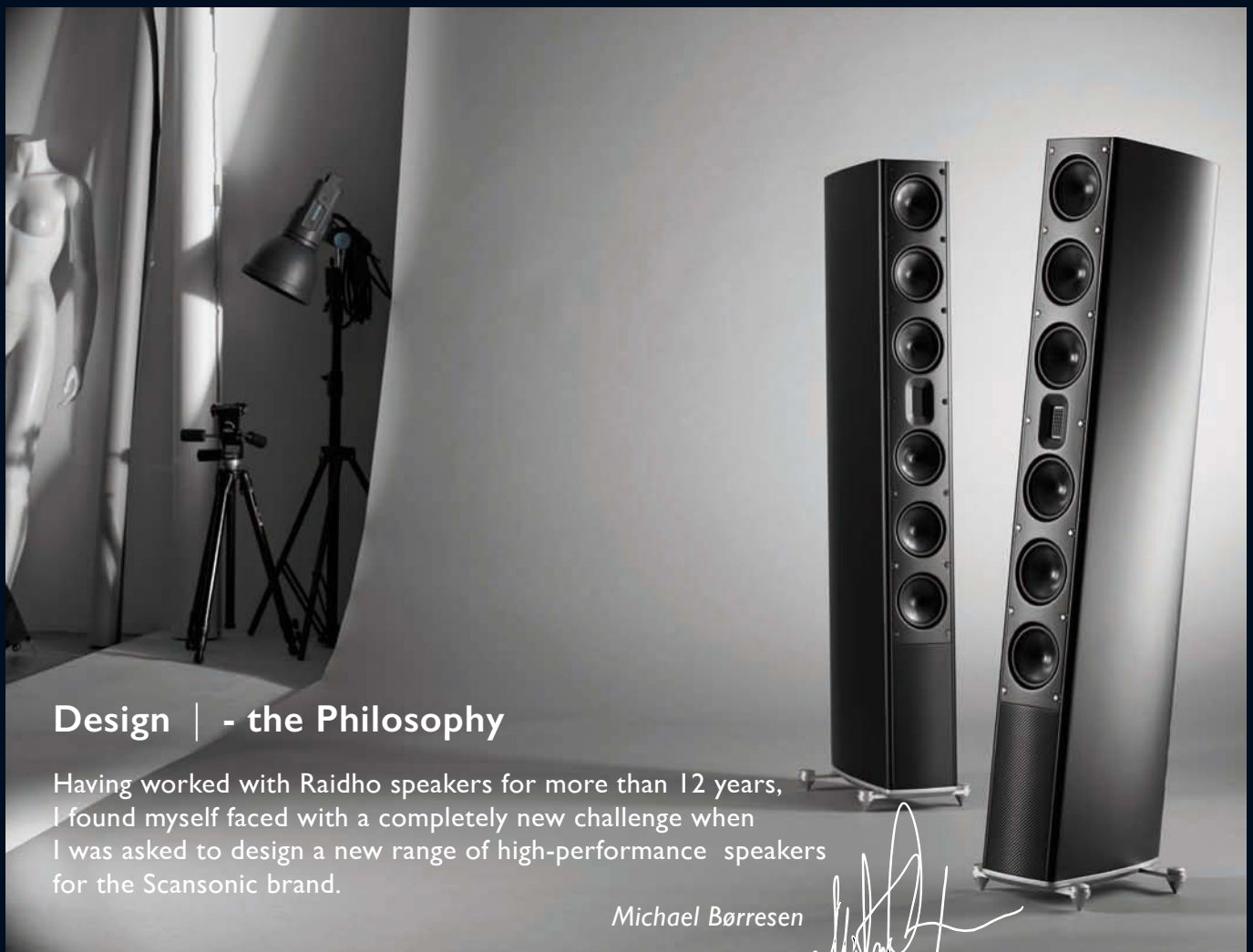
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Michael Børresen

# Lotoo PAW Gold digital audio player

by Chris Martens

I first became aware of the Lotoo PAW Gold high-res digital audio player (£1,499) some time ago when online discussion threads began suggesting the Lotoo might be a strong (and more cost-effective) competitor to Astell & Kern's expensive top-tier players. But now that I have spent some time with Lotoo's flagship player, which is the subject of this review, I'm prepared to say that it is anything but a copycat, 'me-too' product. Rather, it strikes me as being a player methodically designed to do a great many things and to do them all well. While Lotoo's PAW Gold is by no stretch of the imagination an inexpensive product, I think a careful survey of its capabilities, which I hope to provide here, will demonstrate that it offers very good value for money.

The footprint of the PAW Gold is surprisingly compact; if you place it atop the screen of, say, a Samsung Galaxy S5 smartphone, you will discover there is a bit of screen surface showing all the way around the perimeter of the player, which will give you a sense for its pocket-sized dimensions. Even so, the Lotoo does not register on the mind as being truly 'small' owing to two factors: first, it is relatively thick (25.4mm or about one inch from front to back), and second, its beautifully machined solid Duralumin casework feels somewhat like a solid block of billet aluminium in the hand. Rather than offering slimline styling in the vein of players from Acoustic Research, Astell & Kern, Questyle, and others, the Lotoo comes across as a decidedly purposeful (indeed, almost military-grade) chunk of a player—an impression further reinforced by the PAW Gold's handsome two-tone, dark silver and even darker grey anodised outer surfaces.

Lotoo also marches to the beat of a different drummer when it comes to the PAW Gold's user controls. Where some manufacturers prefer minimalist, but therefore perhaps inscrutable, multifunction user controls that rely heavily upon extensively branched pull-down menus, Lotoo takes a different approach. Instead of fitting one or two cryptically labelled 'mystery controls', the PAW Gold takes the old-school approach of providing a number of clearly labelled pushbutton switches, each of which pulls down its own tightly constrained set of control menus.

The front panel controls include the following switches and screens:

- FILE (which allows users to choose selections from a general song, artist, track, and album directory) ▶







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*"Lotoo has packed an awful lot of player in a very small package. The longer I used the Lotoo, the more capable and satisfying it seemed to be."*

- ▶ • LIST (to choose from among user-defined playlists)
- SETUP (which provides comprehensive player setup configuration options)
- ATE/PMEQ (which offers sets of studio-quality 'Acoustic Timbre Embellisher' and user-definable Parametric EQ options),
- An engraved and gold-plated metal rocker-type selector ring (which provides Play/Pause, Forward, Backward, and Stop functions),
- A user-definable 'function button' positioned in the centre of the sector ring,
- An Fn switch (which lets users define the role of the 'function button'),
- A Power On/Off switch that doubles as an 'enable' switch for the player's display screen and front panel controls, and
- A sapphire glass-covered 1.8-inch full colour OLED display screen (which can, at the user's option, provide three different screen views: the main playback/control window, a two-channel real-time spectrum analyser, and a window showing cover art for the track/album in play).

The player's main playback control window is a marvel of user-interface design, presenting a substantial amount of information in a very small space. Specifically, the window shows play settings (repeat or sequential playback modes, etc.), EQ/tone effects settings if any, a colour-coded 2-channel playback VU meter, total time and running playback time for the track in play, the track's sequential number within a given album, file format/bit-depth/sampling rate information, artist/song title/file suffix information for the track in play, and playback status (playing/playback paused/playback stopped). In short, virtually anything one might want to know about playback can be found at a glance on the PAW Gold's screen.

Top mounted controls and jacks include:

- A master gain switch offering high (+15 dBu) or low (0 dBu) gain settings,
- A Hold switch (in essence a control lock-out switch),
- A knurled and gold-plated metal thumbwheel-type volume control (which is protected by a machined metal arch cut into the top surface of the player),
- A headphone output jack (3.5mm), and  
An analogue line-out jack (3.5mm).

The left side of the player provides a USB 3.0 jack (used for loading digital audio files and metadata to the player's music library memory card) plus a dedicated socket for the player's included 12V battery charger. The right side of the player is deliberately left blank, while the bottom edge of the player provides a covered memory card slot that can accommodate SDHC/SDXC music library memory cards of up to 2TB capacity.

If the Lotoo's controls sound overly complicated, in practice the player proved easy to understand and to use. Its hybrid button-plus-menu control architecture is often quicker and easier to use than the controls of many ostensibly easy-to-use players that force users to move up, down, and sideways through labyrinthine menu structures. With the PAW Gold, you simply press the button that corresponds to the task you want to accomplish, and then make your selection from a focused set of menu options. That's it: simplicity in action.

The DAC section of the PAW Gold is based on a Burr-Brown PCM1792 DAC chip ably supported by a stable and accurate clock promising <5ps of jitter. The DAC supports decoding for PCM files from 16-24 bits/8kHz-384kHz, as well as decoding for DSD64 (2.8 MHz) and DSD128 (5.6MHz) files. Next, a dedicated Blackfin 514 DSP device supports the player's extensive EQ and tone-shaping options. Then, a Texas Instruments LME49600 headphone driver device supports the PAW Gold's very powerful 500mW headphone amplifier section. Last but not least, a stonking 6,000mAh lithium-polymer battery gives the Lotoo 11 hours (or more) of playback time, which is impressive considering the player's formidable output capabilities.

Lotoo has packed an awful lot of player in a very small package. The longer I used the Lotoo, the more capable and satisfying it seemed to be. In particular, I found myself drawn to the fact that—unlike many DAPs—the PAW Gold has more than enough output to drive relatively power-hungry planar magnetic headphones. Headphones and CIEM's I used with the PAW Gold during my listening tests included the Audeze LCD-3, HiFiMAN HE 1000, and Oppo PM-1 planar magnetic headphones plus the JH Audio Roxanne, Noble Kaiser 10, and Westone ES60 custom-fit in-ear monitors. Here is what my listening tests revealed. ▶





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▶ The overall sonic character of the PAW Gold falls somewhere in between the precise and almost hyper-pure sound of the Astell & Kern AK380 (as reviewed in issue 127) and the detailed but also warm and highly organic sound of the Questyle QP1R (reviewed in this issue). Frankly, a solid case could be made for choosing any one of these players purely on the basis of one's listening tastes or personal voicing preferences. However, the Lotoo is far more powerful than either of the other two players referenced here, which gives the PAW Gold certain qualities of sonic self-assurance and dynamic swagger that few other portable players can match. When you consider the PAW Gold's middle-of-the-spectrum voicing characteristics and abundant dynamic clout, it may just be that rare bird that fits most listeners and most listening applications, most of the time.

To hear what I mean, try listening to the O-zone Percussion Group's 'Jazz Variants' from *Musik wie von einem anderen Stern* [Manger test CD] as played through a set of HiFiMAN HE 1000 headphones driven by the PAW Gold. The ensemble features a veritable potpourri of percussion instruments that, on this track, are heard at everything from

subtle and delicate on up to 'blow-the-roof-off-the-house' volume levels (and everything in between). Faced with an admittedly challenging track and a set of very revealing and somewhat power-hungry headphones, the Lotoo did not flinch or stumble, but rather rolled up its sleeves and went to work with the sort of finesse and gusto I have usually have heard only through powerful, full-size desktop amp/DACs.

On 'Jazz Variants', then, the Lotoo caused transient sounds to be carved with plenty of leading-edge energy, snap, and speed, while instrumental timbres sounded pure and were highly differentiated. In particular, it was satisfying to hear the Lotoo render the energetic 'pop' of snare drum notes with fierce authority and vigour, while at the same time capturing the distinctive and fleeting 'rattle' of the snares ringing forth from the undersides of the drums. It was also a treat to hear the PAW Gold reproduce the sharp initial 'ping' of notes sounded from chimes (or perhaps tubular bells) and then to hear how the voices of the instruments seemed to 'bloom', then sustain and slowly decay within the reverberant acoustics of the recording space. Finally, the attack, sustain, and intensely modulated 'skin sounds' of the giant concert ▶

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- bass drum strikes heard on the track were simply mind-blowing owing to their impressive combination of raw power and unexpected subtlety. Throughout the track, the Lotoo made dynamic contrasts stand out in a vivid way—effortlessly conveying information about the shapes and dynamic envelopes of notes in a way many expensive loudspeaker-based hi-fi system would have found difficult to capture.

In terms of detail and resolution, I felt the Lotoo Gold was essentially on a par with the Astell & Kern AK380 and Questyle QP1R players mentioned above, although the sonic presentations of the three players can at times sound significantly different. As I noted above, the AK380 emphasises sonic purity, clarity, and detail, where the also finely detailed Questyle delivers a more naturally warm and organic sound. The Lotoo, for its part, falls somewhere in between these two, with a sound that is somewhat brighter and more overtly transient-orientated than the Questyle, but that is perhaps not quite as purity, clarity, and detail-centric as the Astell & Kern.

When I initially listened to the Lotoo, I wondered if it had as much to offer in the way of subtlety and fine focus as the AK and Questyle players. However, one recording that settled the question for me once and for all (in the Lotoo's favour) was the intricate and evocative bluegrass track 'Why Don't You Go Back To The Woods' from Jerry Douglas, Russ Barenberg, and Edgar Meyer's *Skip, Hop & Wobble* [Sugar Hill]. What especially caught my ear was the effortless manner in which the Lotoo crisply differentiated the attack, timbre, and decay characteristics of the overlapping voices of Douglas' Dobro and Barenberg's steel-string guitar—instruments that, as rendered by lesser players, can be very difficult to distinguish indeed. I was also favourably impressed by the Lotoo's ability tease out the astonishing array of textures that master bassist Edgar Meyer is able to draw from his acoustic bass on this track. At one moment Meyer will explore the instrument's deep, growling sonorities, yet in the next he will evoke lighter, higher pitched, and more fleet-footed aspects of the instrument's sound in a manner reminiscent of, say, a mandolin. Through it all, the PAW Gold admirably keeps pace with Meyer's variegated performance – something that would be hard for amp/DACs of any size or price to do so well.

Over the course of listening for this review, Lotoo's PAW Gold has become a favourite listening tool for me, as well as a preferred travel companion. I say this because this versatile and accomplished digital audio player is as much at home driving power-hungry full-size headphones as it is in making high-quality, high-sensitivity CIEMs sing. It can literally drive anything and everything well, making it the portable digital audio player for all seasons and reasons. +

## TECHNICAL SPECIFICATIONS

**Type:** High-res portable digital audio player/DAC

**Inputs:** Super Speed USB 3.0 (via Micro-B jack; used solely for uploading digital audio files to the player), Music library memory card (see 'Storage', below)

**Outputs:** Stereo analogue line output (via 3.5mm min-jack), single-ended headphone output (via 3.5mm mini-jack)

**Firmware:** Upgradeable via Lotoo-supplied downloads

**Storage:** Single card slot for SDHC/SDXC music library memory card at capacity of up to 2TB

**DAC:** Burr-Brown PCM1792

**Other Processors & Major ICs:** Blackfin 514 DSP device supports ATE & PMEQ options  
Texas Instruments LME49600 headphone driver

**Clock Jitter:** 5ps (Typ)

**Supported Formats:** WAV, FLAC, AAC, ALAC, MP3, WMA, M4A, CUE, OGG, APE, WavePack, and DSD (DFF, DSF, ISO)

**Sample Rates:** PCM: 8kHz – 384kHz, 16/24-bits

DSD: DSD64 (2.8MHz), DSD128 (5.6MHz)

User Interface: 1.8-inch colour OLED screen, plus control switches and jacks as describer in the main review text.

**Frequency Response:** Headphone& Line Output:

20 Hz – 20KHz, ± 0.06dB; 5Hz – 50kHz, ± 1dB

**Output Levels:** Maximum output: 500mW@32

Ohms. Headphone output, high gain: +15dBu.

Headphone output, low gain: 0 dBu

**Line output:** Maximum output: 2V RMS, +9dBu

**THD + N:** Headphone output: 0.00058%

**Line output:** 0.00036%

**Signal/Noise Ratio (headphone and line output):** 120dB

**Battery:** 6,000mAh, Li-Polymer battery

**Playing time:** 11 hours

**Dimensions (HxWxD):** 104 × 60 × 25.4mm

**Weight:** 280g

**Price:** £1,499

**Manufacturer:** Lotoo, Ltd.

**Tel:** +86-400-653-8168

**URL:** www.lotoo.cn

**Distributed in the UK by:** KS Distribution

**Tel:** +44(0)1903 768919

**URL:** www.ksdistribution.co.uk

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## Benchmark DAC2 HGC digital converter

*by Jason Kennedy*

**B**enchmark was the brand that introduced the first serious small scale digital to analogue converter. Before the original DAC1, most converters were either full width or not taken seriously. All that has changed with a plethora of high-spec, all-singing DACs that are primarily designed for the headphone market but which also have preamp outputs. The DAC2 HGC has a lot more competition than its forbear, so Benchmark has upped the ante in terms of conversion capability, but it remains very similar in facilities terms.

There are three DAC2s in the Benchmark line of which the HGC (hybrid gain control) is the most comprehensively equipped. The DAC2 DX (£1,599) is essentially a professional version that dispenses with the analogue preamp and remote control but adds another analogue output and AES/EBU digital input, while the DAC2 L is as per the HGC but has no headphone outputs (£1,549); that's right, this DAC has two analogue inputs and full preamplifier functionality thanks to XLR and RCA phono outputs with volume control.

Unusually, the analogue input does not get converted into digital so that it can be attenuated with a digital volume control, instead it bypasses the digital side and has its own passive attenuator – hence the H for hybrid.

The feature list is rather larger than its sub 25cm width might suggest, it includes sample rate and word length display via LEDs with rather tiny legends, five digital inputs including asynchronous USB, digital pass through, 12V trigger, home theatre bypass, and a polarity switch. Oh yes and a diecast remote handset with squidgy keys somewhat reminiscent of a Sinclair ZX81. With all of this and a lovely knurled aluminium control knob, it's easy to see why Benchmark has established itself in both our world and that of the burgeoning home studio market. But £1,699 is quite a lot to pay for a compact DAC. Most of the competition has most of these features, albeit proper analogue in/output is rare. So with this DAC there is more: internal jumpers allow you to convert a digital input into digital pass-through (more of a studio thing), the attenuation of the XLR outputs can be altered by +/- 10dB, as can headphone output level, and finally, the headphone output on the left can mute or let be the pre-output as you choose. So it's pretty flexible, definitely more so than most.

On the commercially sensitive side of what the converter is capable of, you have a native DSD channel that does not turn DSD into PCM prior to conversion to analogue. However, the DAC2 is limited to DSD64 and not the multiples thereof offered by some in the market. And even if the DAC2 runs four 32-bit DACs arranged in balanced configuration to minimise noise, this does not produce a balanced output at the XLR connections. The USB input can be run in class 1 or 2 with the latter requiring drivers when used with a Windows based computer. You can run it in class 1 too, but that limits sample rate to 96kHz. As the driver is a free download it seems worthwhile installing it for the truly ►



► high-res material in your collection. Given that Benchmark is a North American company it's surprising and refreshing to see it point out that while the differences between the now discontinued DAC1 and its replacement are many and various, those wanting to enjoy great sound alone and who do not want to play the latest formats will not find a big difference between the two. I am not familiar with the DAC1 so cannot comment, but it sounds as though those that are can rest easy, for now at least.

Those who use reading glasses will need them to identify what the legends on the front of the Benchmark say, but that is where the remote comes in. Even if you don't recall which coaxial input you used, clicking through the options reveals the active one to have a steady blue light and the empty ones to flash, ditto other inputs which is handy. I started by connecting the DAC2's single ended outputs to my ATC P1 power amp with a Macbook Air hooked up to the only USB input, so no input selection challenges there. I played a DSD version of Dylan's 'Visions of Johanna' [*Blonde On Blonde*, CBS], which seemed a little lightweight but it's an old recording that the effects of DSD do not necessarily enhance. That said, the song retained its evergreen appeal, and the soundstage was notably wide, if lacking in depth. After a few more pieces, which proved that this DAC is transparent enough to reveal big differences in recording style, I switched to the coaxial input. This was fed by the somewhat convoluted chain of the Melco digital transport via Ethernet to a Moon MiND streamer and thence through Chord Co's finest to the coax input. All of which did nothing to stop this input sounding clearly superior with the soundstage opening up in

width and depth to provide a space for far more realistic instruments and voices to unfold within. The effect produced what seemed like a doubling of resolution thanks to the increase at low levels, and the structure that brings to the overall sound. Even the bass seemed to be tighter, which wasn't expected, but the Melco is a rather more dedicated audio source than the Macbook.

That said, when I made comparisons between coaxial and USB inputs using the Melco alone, the former remained obviously superior. This time the change was more subtle, but nonetheless pretty obvious. In essence, the coax input sounds more relaxed and delivers more detail and the music becomes more sophisticated or intricate, allowing you to hear further into the mix. It even makes the music played on the Benchmark DAC2 easier to enjoy. In fairness, USB is louder in both level and character, which may of course suit some systems. However, in a system designed for maximum resolution, the older input remains the more appealing. ►

*"The effect produced what seemed like a doubling of resolution thanks to the increase at low levels, and the structure that brings to the overall sound."*



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► Going from the DAC2 connected directly to the power to having its full output routed into a Townshend Allegri passive pre also brought gains. Given that I was using digital inputs and thus digital volume control this is not entirely surprising, but Benchmark does go to some lengths to get this aspect sounding as good as possible. However, the Allegri is very good and improves the timing, dynamics, and the high frequencies on this DAC despite the extra run of interconnect in the system. Switching to the XLR outputs did help to redress this, and the extra voltage available proved a better match for the power amp and delivered dynamics far more effectively. Now Barenboim's Symphony No.7 in A Op.92 [(*Beethoven For All*, 24/96, Decca)] had light, shade, and vigour and no longer receded in the way it had via the RCAs.

The analogue input proved to be rather good, too. Using a Naim Audio NAC-N 272's digital and analogue outputs via the Benchmark made a good case for the latter, which produced a more relaxed and open result that made me want to listen for longer. It reveals what you would expect: the Naim NAC-N 272 has a better DAC as you might hope at around twice the price of the DAC2, but also that the analogue inputs on the latter are sufficiently transparent to show as much.

With DSD recordings, results are on a par with PCM. Modern classical recordings, such as a Marianne Thorsen recording of Mozart's Violin Concerto in D major [*Trondheim Solistene*, 2L], sound beautifully open, detailed, and just a tiny bit bright, but spectacular nonetheless. Contrasting the Benchmark with a Hegel HD12 DSD (£900) made a case for the extra cost of the newcomer, but only in terms of openness. While you get more of the hall acoustic with the Benchmark, in other respects the two are more or less at level pegging.

The latest incarnation of the Benchmark DAC remains a comprehensively equipped and highly capable piece of kit. Those looking for flexibility of operation will find little that competes while listeners in search of the ultimate affordable DAC have a small but remarkable contender to add to the must hear list. +

## TECHNICAL SPECIFICATIONS

**Type:** Solid-state high-resolution PCM and DSD-capable digital-to-analogue converter/preamplifier.

**Digital inputs:** Two Coaxial, two Toslink, and one USB 2.0 DoP V1.1 transmission protocol supported through USB only

**Analogue inputs:** Two single-ended pairs (via RCA jacks)

**Analogue outputs:** One stereo single-ended (via RCA jacks), one balanced (via XLR connectors), two headphone (via 6mm jacks).

**DAC Resolution/Supported Digital**

**Formats:** All PCM from 44.1KS/s to 192kHz with word lengths up to 24-bit, DSD64 (2.8224MHz)

**Frequency Response:** 20Hz–20kHz, +0dB / –0.04dB

**Distortion (THD + Noise):** <0.00035%, 20Hz–20kHz at 0dBFS

**Output Voltage:** not specified

**User Interface:** diecast metal remote handset

**Dimensions (HxWxD):**

44.5 × 249 × 237mm

**Weight:** 1.36kg

**Price:** £1699

**Manufacturer:** Benchmark

**Tel:** +1 315-437-6300

**URL:** benchmarkmedia.com

**UK Distributor:** SCV Distribution

**Tel:** +44(0)3301 222500

**URL:** www.scvdistribution.co.uk



*“The analogue input proved to be rather good, too.”*

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Hifi+ on the 151 Musiccenter - March 2015

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# Melco/Exogal/Vitus/ Estelon system

by Chris Thomas

**A**s a reviewer I crave change and am always expecting to hear something that just might tell a different musical story. It's even more intriguing when it comes with solid recommendations and takes the shape of a technology that, with a couple of exceptions, hasn't completely convinced me of its musical merits up until now. Add the fact that the whole thing will be supplied and installed by a single UK distributor, it's time to kick back and enjoy the music. No concerns about system compatibility here, and in the case of this system, no pressing reason to leave the couch either.

This Kog-supplied system is simply perfect for the lazy audiophile who likes to wander through their music library via a remote app. But, given my general reservations concerning the overall musical viability of stored digital music (excluding CD), was I really the right person to ask to review this system? I know both the Vitus SIA-025 and the Estelon XC speakers from separate reviews and think very highly of them both. But this system was going to succeed (or not) on the capabilities of its digital front end

where both the Melco N1Z music player and the Exogal Comet DAC were new to me. Fraser, from Kog, had been extremely fulsome in his praise for both components for a while, and now it was time for him to 'put up' and let the equipment do the talking.

The Vitus is one of those designs that will most certainly go on to be considered something of a classic. A single-box integrated amplifier of a mere 25 watts, it sprang from the loins of the original SS-010 and, like all Hans Ole's designs, is constructed around a huge transformer that is UI in shape and sits at the core of the amplifier's weighty build and performance. The Vitus can be switched from Class A/B to A and it certainly should be left in the latter for all critical listening. It does take an hour or more to really show its qualities from power-up, but fully warmed, there is no question of its benefits. With two unbalanced and three balanced inputs and a menu system that I am growing more familiar with (after an initial rather dumb period) it tells its seamless musical story with control and subtle flair regardless of what music that entails.

Describing its sound leads me to the way the music flows through it unhindered. It is one of those open-window amplifiers that is always in control, but without the iron-fisted note shaping of some solid-state designs. It glides along with an almost casual attitude to both rhythm and tempo and never, ever becomes over analytical or flustered. It will sound as good in 20 years as it has done for the past several and is at home in most real-world listening rooms except perhaps for grossly inefficient speakers, larger spaces or the most dedicated of head bangers. If you have all three of these conditions then Vitus have plenty of models further up their ranges that will be better suited.

The Estelon XC has become one of my favourite speakers. This is the only stand-mounted speaker in their range and its single column support is attached deep within that curvaceous shape, necessitating transportation in a pair of chunky flight cases. The speaker comprises a three-way design utilising



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*“My concern was how this collection of Kog goodies hung together as a system, if indeed it did; it was always going to be interesting.”*



► ceramic drivers from Accuton fabricated to Estelon's own specific requirement and mounted in a Mid-Treble-Mid configuration. A substantial rear facing port means that they need a metre or so of room between them and a rear wall of which a little more wouldn't go amiss if you have the space. Kog installed them on my wood floor, sitting atop Stillpoints directly attached to devices and with a modicum of toe-in; in fact, just about where they sat when I reviewed them a while ago.

Balance wise, they are lean rather than over-ripe, and when driven properly they have a superb bandwidth and are clean and enormously focussed. This, coupled with quite fantastic driver integration, gives them a musical togetherness and articulation that is quite special. Tonally, they are on the cool side but are never too bright, though that superb ceramic tweeter has incredible texture and is explosively dynamic when needed. I love the way that they create so much space and depth as they project the music outside of those slim cabinets. Their scale and presence is also notable. The lack of excess fat and undue warmth in the bass is offset by their precision and resolution. When driven by the Vitus (through Nordost cabling in this system), they speak with eloquence and real authority – together they make a very musical pair.

However, given my previous experience with both amp and speakers it was always going to be the front end of the Melco and the Exogal that would make or break this



system. Both have been reviewed in these pages recently by AS. The Melco N1Z in issue No. 24 and the Comet in the issue following that. I would suggest a read of both of those for the (much) bigger picture. My concern was how this collection of Kog goodies hung together as a system, if indeed it did: it was always going to be interesting.

The Melco N1Z is best considered a USB digital music library designed and built solely with regard for its musical capabilities and potential as opposed to borrowing internals from the computer spares shelf. The Exogal Comet, supplied here with the optional separate power supply, has also been making noises, not least for its quality/price equation. But, given its excellent connectivity and the fact that it can be employed to drive a power amplifier directly, it is actually a very capable digital hub. My only criticism would be its silvered display that is supremely difficult to read except from a few feet away and in the right light. Though in truth, the remote allows you to quickly scroll through the inputs and adjust the level without recourse to the display. A conventional illuminated design would be my choice, but it's certainly not a

*“When you hear a system that is truly musical it should draw you in and move you. It really must be as expressive as the musicians.”*



► deal breaker. Hook this pair together with a decent USB cable (Entreq in this case) and you're ready to go.

Both are immensely versatile when it comes to files and can handle anything from MP3, through higher and higher rates, up to many times DSD. The Melco has a pair of 512GB SSDs on-board with the ability to connect with external storage systems too. The entire music library is very straightforward to access and follows the layout that has become so familiar. The only real choices you need to make are whether to use Twonky or the Miniserver, both selectable via the app.

As someone used to listening through an extremely good CD-based digital front end, it didn't take long to realise that this system has resolution to burn. The Melco had been pre-loaded with all manner of hi-res files and we also ripped some of my own CDs onto it via a MacBook. It seems impossible for me to try

and explain how good it is without expressing my general (not total) disappointment with so much hi-res streaming I have heard up until now. What is it that separates a truly musical performance from the somewhat brittle, compartmentalised, detail-etched attempts that have caused me to look the other way? Why do I use my own home streaming set-up as a distinctly second choice musical source? I guess the answer lies in the way the music is joined up, and this is such a broad subject – too involved for this review anyway. So, let me distil it and say that resolution without a truly musical context is rather uninteresting to my ear. It's like a footballer that can keep the ball up for hours on end, while doing handstands, but has no aptitude for the game, the team, or the tactical flow of play. The Melco/Exogal are definitely team players.

When you hear a system that is truly musical it should draw you in and move you. It really must be as expressive as the musicians and if it's worthwhile it should be able to take you on an emotional ride. Sitting and listening to a collection of sounds, however explicit, doesn't get anywhere near it for me. But, as always, the front end just has to be right.

This one is a success from the off. My rips of John McLaughlin's *Remember Shakti: Saturday Night In Bombay* [Decca] with all its full-on intensity pace and explosive beauty is a stern test. The atmosphere and rolling textures of the drone from the tambura that opens each track floats across the room and warns of the fire to come; but it is more than just a sound. It's a colour, a calming constant, and a backwashed, coloured landscape against which the musicians are going to write their message. 'Bell'Alla' illustrates this perfectly, and the Melco/Comet is super quiet and allows the drone to softly wallow before ►

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*“As the percussion blasts through patterns of great intricacy and colour, the system is in its element.”*

► heralding McLaughlin’s guitar. McLaughlin can be so lyrical and melodic, but you sense that the percussion train is entering the tunnel somewhere in the distance – when it emerges, it is already doing over 100 mph. The resolution here counts for nothing without some sense of order, and you get a lot more than the leading edges too. This track alone shows that the Melco/Exogal set-up has the space and the rhythmic integrity to allow these enormous dynamic shifts full impact. As the percussion blasts through patterns of great intricacy and colour, the system is in its element. Never brittle or rushed, the lack of obvious compression is completely invaluable. The Vitus and the Estelons gobble this stuff up as the driving percussion fires across the room at you and never trip over themselves, drop a stitch, or sound disjointed; the whole system is an exercise in energy control and management.

That sense of ease and natural, unbleached tonality is a hallmark of this system and is always present. It lifts the musicality up to the resolution level, instead of towards pure information retrieval. The intimacy this effect can have is evident on the simple but rounded recording sound of Richard Hawley’s *Truelove’s Gutter* [Mute]. The track ‘Remorse Code’ is a gentle, close ballad with rather more subdued dynamics and pace, but is infinitely denser and tonally nuanced than it may at first appear. The system spreads such musical qualities wide and deep across the room, almost inviting you to step into its casual acoustic. Clever use of mixed reverbs and the instrumental shimmer break against the room’s boundaries as the gentle rhythms and textural contrasts play right into the enormous qualities of the Vitus and the sparse clarity of the Estelon XCs. It is a relaxed but far from straightforward production and highlights the superb ‘out of the box’ presence and accessibility of the system.

Once thoroughly warmed through and dialled into the room, I found this to be a very musical system indeed. I reckon you will love the way that you can hear the musicianship of individual performances and the fact that there is so little unpleasant tension in the sound. The creative aspect of music making that all musicians crave is beautifully realised by this Kog system and its performance arc is broad.

At this moment, I see streaming from a music library like the Melco as being at its most successful when run alongside a quality CD player and not as a replacement. Access to hi-res files through the N1Z is great, if you like hi-res. Personally I am intrigued with certain recordings but until I can get the music I want to listen to in high-res formats, it is no more than that.

The Exogal is remarkable value for money and could quite happily sit at the hub of many a high-end digital system. The Vitus and the Estelons are truly superb too but when together they make a system that perfectly fits the Kog ethos of ultimate musicality and where the musicians and their music are the stars, then that’s what system building is really all about. +

## TECHNICAL SPECIFICATIONS

### Melco N1Z Network Music Player

File types supported: DSF, DFF, FLAC, WAV, ALAC, AIFF, AAC, MP3, WMA, OGG, LPCM

Ports: 2x RJ45 LAN, 3x USB 3.0 terminals, 5v USB charging port

Internal HD: 512GB SSD x 2

Dimensions (HxWxD): 6x37x35 cm

Weight: 7kg

Price: £6,200

### Exogal Comet DAC

Digital Inputs: XLR, BNC, Toslink, USB-B

Analog Inputs: isolated RCA

Analog Outputs: XLR, RCA

Sample Rates Supported:

16bit/32kHz–32bit/384kHz, DSD64, DSD 128

Dimensions (HxWxD): 4.76x19x29.2 cm

Weight: 4.2 kg

Price: £2,100 (PSU: £550)

### Vitus SIA-025 Amplifier

Inputs: 2x RCA, 3x XLR

Rated power: 2x 25 watt Class A / 2x 100 watt Class A/B

Dimensions (HxWxD): 13x43.5x43cm

Total Weight: 42Kg

Price: £18,500

### Estelon XC Standmount Loudspeakers

Drivers: 2x 173mm Ceramic mid/bass drivers, 1x 30mm ceramic inverted dome tweeter in MTM configuration

Frequency Response: 45Hz–28kHz

Nominal Impedance: 4 ohms

Sensitivity: 91 dB

Dimensions (HxWxD): 126x26.2x36.7cm

Net Weight: 49kg with stand

Finishes available: High gloss black as standard. Consult dealer for custom finishes.

Price: £15,500 per pair

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# Fostex®

# TAD Compact Evolution 1 standmount loudspeaker

by Alan Sircom

**T**here's a myth surrounding loudspeakers that needs tearing apart. It's that Japanese audio manufacturers aren't as good as making loudspeakers as their British or American counterparts. Generally, this is nonsense, and comes about in part because of Japanese collectors and their passion for classic BBC and Tannoy designs, and in part because a lot of the best products made in Japan, stay in Japan. TAD is one of the rare exceptions – the high-end audio arm of a larger company that has a truly international outlook, and as a consequence its loudspeakers have commanded extraordinarily high respect in the audiophile community.

TAD's loudspeakers have also commanded an extraordinarily high price. The TAD Compact Evolution 1 is an attempt to address those lofty tags; it's still not a cheap loudspeaker in any sense of the term, but TAD is not a cheap brand. This standmount loudspeaker represents everything TAD can put in a standmount loudspeaker without it either costing as much as a new E-Class Mercedes, or having it sacrificing what TAD represents in sonic terms.

First seen as a concept at last year's Munich High End, then in final form at CES 2015 this year, something of a buzz went around the Venetian Tower that TAD was making a sound from a standmount that shouldn't be happening – they were filling a big room with the kind of sound you might expect from a larger floorstander and the sort of transparency you could hear from an electrostatic design. A similar result occurred at Munich 2015 and a similar result occurs every time people sit in front of them – including when I sat in front of them.

These are three way loudspeakers with a 35mm coaxial beryllium dome tweeter sitting in the acoustic centre of the 140mm midrange cone, and a 180mm MACS (multi-layered aramid composite shell) woofer sitting beneath that. These loudspeaker units are made by TAD for TAD and are recognised for being virtually unbreakable in normal use. Or even abnormal abuse: basically unless you take a chisel to them or connect the speakers to an arc welding generator in place of an amplifier, nothing you can throw at them will trouble the CE1 drivers.







*“I know of many loudspeaker designers who took a very close look at this port design.”*

TAD's website suggests the Compact Evolution 1 to produce an “Overwhelmingly massive sound from a compact cabinet.” Which would be an overwhelmingly pompous thing for a company to say, were it not for one little detail – it just happens to be true. It does make a truly massive sound, one that just can't come out of a cabinet that small - and I'm used to “it's bigger on the inside” loudspeakers like the Wilson Duette 2 and the KEF Reference 1.

This is one of those rare speakers that redefines what is possible from a standmount. Every thread of King Curtis' ‘Memphis Soul Stew’ [*Live at Fillmore West*, ATCO] is played out with harmonic structure fully intact, not just faux richness or depth. This is a complex, slow-build live cut that starts with a bass guitar and ends with a whole funk band playing at full tilt, and as a consequence needs to be able to be as convincing when it's just one musician playing and when there are a dozen people on stage without underplaying the former or blurring the latter. This is normally the acid test of smaller loudspeakers, because they can do the opening parts but fall over by the time the Memphis Horns kick in. By way of comparison, most bigger loudspeakers are fine with the full brass section, but tend to make Jerry Jemmott's bass lines sound a little too big for their own good. The CE1 is one of the few exceptions that can cope with both equally well.

This track tells you a lot more about the CE1. You can hear voices in the crowd picked out with ease, but not undermining the sound of the audience as a whole. You can hear the picking dynamics of Cornell Dupree's signature Fender Telecaster playing change during the repeated riff, even when his playing is pushed back in the mix as more and more musicians are playing. All those threads are clearly defined: even Pancho Morales' congas – which can get lost in the mix – are easier to pick out and follow than through many other loudspeakers.

Moving over to solo piano (Martha Argerich playing Chopin Preludes on DG) there is a sense of physicality and weight to the sound, like you get to hear on a real piano in a live event: not just in the midrange, but extending up to the far left hand and down to the far right. In a way, this is what a BBC loudspeaker is supposed to sound like, rather than exaggerating the slightly softened bottom octave and the very slightly ‘shiny’ upper mids. ►

► The signature bit of deep-clever in the Compact Evolution 1 is its port. Make that ‘ports’; there are two vertical slits built into the enclosure's side panels, and the aluminium plate that covers these side panels effectively creates a flared port extension to the front and rear of each loudspeaker. This means the port fires simultaneously to the left and right sides of the front and the rear of the loudspeaker. You could almost think this a port with a loudspeaker attached to its centre. What this unique BiDirectional ADS (Aero-Dynamic Slot) port arrangement does is help overcome the physical placement issues that surround a rear-firing port as well as the ‘chuffing’ effect from a front-firing port, but also helps reduce internal standing waves within the cabinet. In the last throws of a show, when the visitor numbers begin to dwindle and the engineers go walkabout, I know of many loudspeaker designers who took a very close look at this port design with a combination of professional respect, personal envy, and corporate espionage on their mind. Doubtless within a couple of years, we'll see a lot more loudspeaker companies ‘discovering’ this innovation.

TAD rates the loudspeaker with a sensitivity of 85dB, a nominal impedance of four ohms and a maximum power input of 200W, which suggests you need a powerful amp, but not a power-house amp, to drive the CE1 comfortably. Naturally, a lot of those amps are also likely to come from TAD's own stable, and this is what we used. But this is not mandatory, and at Munich this year, the CE1s were also sounding excellent hanging off the end of some new Audio Alchemy electronics.



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*“At its best, this track shouldn’t sound like it was played, programmed, or recorded; it should sound like it was squeezed out through the ovipositor of something very big, very sticky, and very scary.”*

► But it was playing ‘Chameleon’, by Trentemøller [*The Last Resort*, *Poker Flat*] that really showed what these speakers are capable of. I’ve used this track to determine low-end performance of a system for some time, but there are little demi-semiquaver pre-beat beats that I’ve not heard before. The track takes on a malevolence even more menacing than before, as it should: the track can do atavistic things to you. At its best, this track shouldn’t sound like it was played, programmed, or recorded; it should sound as if it was squeezed out through the ovipositor of something very big, very sticky, and very scary that was best locked away in H.P. Lovecraft’s, H.R. Geiger’s, or Hieronymus Bosch’s imagination. That usually only happens if you are playing the track through big full-range loudspeakers at ‘naughty’ levels. But this happened here, even played at normal levels. Impressive doesn’t even cut it.

Imaging too is exceptional, with bass integration that fits the room, not just the loudspeaker. Which all sets a standard you’ll struggle to replicate from a loudspeaker at this size, price, or performance.

If there’s a deviation from absolute honesty, the CE1s adds a mild warmth to the overall presentation. This adds to the listening pleasure, rather than masking fine detail, but it’s this that sets it apart from its far bigger Reference models. In its peer group though, it simply trades blows with the best of them.

I began this review by trying to unseat a meme. I’m going to end the same way. TAD’s Compact Evolution 1 is an outstanding loudspeaker. Not just a loudspeaker to make big sounds in small rooms. And it’s not just the first choice for TAD users. This is a cogent loudspeaker system in its own right, for people who have no plans to buy any other TAD equipment. Yes, it sounds great in context, but the TAD Compact Evolution 1 loudspeaker sounds great with a number of different amps in a wide variety of locations because it’s a great loudspeaker. Strongly recommended. +



## TECHNICAL SPECIFICATIONS

**Type:** Three-way bass reflex standmount loudspeaker

**Driver configuration:** 35mm dome tweeter coaxially mounted within 140mm cone midrange, 180mm woofer

**Frequency response:** 34Hz–100kHz

**Crossover frequencies:** 250 Hz, 2kHz

**Maximum input:** 200W

**Nominal impedance:** 4Ω

**Sensitivity:** 85dB (1m, 2.83V)

**Dimensions (W×H×D):** 29× 52.4×44.6cm

**Weight:** 30 kg

**Price:** £16,495 per pair (£17,995 with stands)

**Manufactured by:** TAD

**URL:** [www.tad-labs.com](http://www.tad-labs.com)

**Distributed by:** Nu Nu Distribution

**URL:** [www.nunudistribution.co.uk](http://www.nunudistribution.co.uk)

**Tel:** +(0)203 544 2338



# WIN! A pair of Red Russell K Red 100 loudspeakers worth £1,250 must be won!!!

**R**egular readers of *Hi-Fi+* will remember we ran a competition in our March issue (Issue 121), where one lucky reader won a black pair of Russell K Red 100's. Due to an unprecedented number of entries we received, we have teamed up again with our good friends at Russell K to give away another pair of Red 100s, this time in its striking red livery. Our Editor, Alan Sircom, reviewed the Red 100 in issue 119, and was so impressed with these 10kg speakers that he concluded "The Red 100 is a good speaker, but more importantly it's a good idea, and they are rare. Not an easy speaker to classify in audio terms, but highly recommended, and fabulous value to boot". +



### Competition Question

How much does a Red 100 weigh?

- A. 10kg
- B. 50kg
- C. 100kg

To answer, please visit Russell K's dedicated competition page at <http://russellk.co.uk/competition.php>. Alternatively, send your answer on a postcard (including your name, address, and contact details) to "Russell K Red 100 competition, Russell K Ltd, Wentworth House, 81-83 High Street North, Dunstable, Beds, LU6 1JJ". The competition closes on January, 7th 2016.

### Competition Rules

**The competition will run from November, 5 2015 until January, 7 2016.** The competition is open to everyone, but multiple, automated or bulk entries will be disqualified. The winner will be chosen at random from all valid entries, will be contacted via email (where possible) and their name will be published in the magazine. The Editor's decision is final and no correspondence will be entered into. Absolute Multimedia (UK) Ltd. is compliant with the Data Protection Act and UK laws apply. Our policy is such that we will not pass on your details to any third party without your prior consent.

# Kuzma RD Ultra Sonic Record Cleaning Kit

by Roy Gregory

Cleaning records is one of life's necessary evils. Even before vinyl became a specialist or niche source, unceremoniously pushed aside by CD, buying secondhand records necessitated a way of cleaning the dubious contaminants that infested their surfaces, while slowly but surely, we all became aware that the pressing process itself left muck in the grooves that meant that even new discs benefitted from a good clean. Record cleaning options ran from the non-existent ("Let the stylus clean the groove, then just clean the stylus") to the ineffective (the "fabulous" RecoVac) via various combinations of fluids and scrubbing brushes, all the way to smear on

and peel off latex 'face packs'. But even then, if you were serious about record cleaning you used a machine, generally the Keith Monks (expensive, slow, but quiet-ish) or the VPI (affordable, fast, but noisy). The problem is that almost all of these methods are self-defeating, either because they don't work or they are so tedious to use that only the terminally sad would persevere. On that basis alone, I've relied for years on VPI's incredibly simple machines, but as fast as they are, I still find my own personal tolerance level sits around the six-disc mark, especially if you are using a two-stage wash and rinse cleaning fluid. After that I need to lie down in a darkened room, preferably playing something very loud...



*“Given the ubiquity of ultrasonic cleaning... there’s no shortage of off-the-shelf cleaning baths.”*

► But just recently, the record cleaning landscape has been shifting: our increasing reliance on secondhand records, coupled to the ever-increasing capabilities of our record replay systems means that the ability to clean records has never been so important, meaning that an increasing number of record cleaning machines is hitting the market. Many of these are variations on the established “wet and dry” theme, seeking to offer lower prices or more facilities. But the most significant new entry was the AudioDesk System cleaner, the first in my experience that offered a significant advance in the effectiveness of the cleaning process itself, by using ultrasonic technology. This involves rotating the record through a bath of water that is excited at ultrasonic frequencies, which in turn dislodges contaminants lodged in the record’s grooves. It’s a technique developed for cleaning everything from jewellery to metal parts in precision engineering: a vinyl record should be child’s play – or so you’d think. In practice, the very fragility of the vinyl record poses the problem, with AudioDesk taking a few years to iron out issues surrounding the longevity and functionality of the rollers that rotated the vertical record’s playing surfaces through the water bath while holding the label high and dry. Even so, the experience was salutary, and as expensive and finicky as the AudioDesk machine was (at least initially) there was no denying the effectiveness of its cleaning or the appeal of a machine that cleaned both sides of the disc in an automatic cycle. It soon became apparent that when it comes to records, there’s clean – and then there’s really clean. The die was cast and record cleaning would never be the same again, with a number of ultrasonic cleaners hitting the market in the years since. But for most of us, the price of entry has been prohibitive – until now.

Enter that master of cost-effective engineering, Franc Kuzma. Given the near ubiquity of ultrasonic cleaning across a whole host of precision occupations, there’s no shortage of off-the-shelf cleaning baths available. Why not (he wondered) simply take advantage of an existing solution, adapting it to the task of cleaning records and cutting the price of the process into the bargain? So that’s exactly what he did: Kuzma’s RD kit is best considered as a cradle that allows a motorized axle to be positioned over a commercially available ultrasonic cleaning tank. Its four legs are adjustable for height,



making it compatible with a wide variety of cleaning tanks, but I’ve kept the best for last: the axle that holds the record being cleaned, spans the entire tank – and most tanks are a lot wider than a single, vertical record. By providing a series of spacers to separate the discs, the Kuzma RD is able to clean as many as ten records at once! Now that got my attention!

As well as the frame, with its small electric motor and drive sprocket, the kit includes all the axle elements (locking collars, spacers, and sliding retainer) to create your very own record kebab, as well as a very necessary stand in which to construct said kebab or allow the records to dry after their bath. The operation is simplicity itself. Once you have selected your cleaning bath (Kuzma supply specs and, having conducted exhaustive testing, a list of recommended models on its website) fill it with the appropriate amount of distilled water along with any additives you deem necessary (the kit comes with a small bottle of isopropyl alcohol and an even smaller bottle of wetting agent, but you could experiment with a diluted solution of any one-pot record cleaning fluid – the thing to remember is that it’s the cavitation rather than the fluid that is doing the cleaning): turn it on to warm up to the recommended 33 degrees celsius and assemble the records to be cleaned while you wait for it to reach the temperature. This involves standing the axle in the vertical boss on the heavy, cast iron base and removing the spacers. Then you just stack up the records to be cleaned, alternating with the Delrin spacers and finish off with the sliding ►

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*“It cleans around ten records at a time. Let me just say that again – it cleans TEN records at a time.”*

- Delrin spacers and finish off with the sliding lock collar. Lift the whole, slightly ungainly assembly and place it in the jaws atop the cradle, ensuring that the drive cogs mesh properly. Set the timer and intensity on the cleaning tank (I ran it for 20 minutes on the delicates setting) and start the motor. The records will slowly revolve through the tank until the cycle is complete, at which point you lift the axle clear and place it in the angled boss on the stand so that the records can air dry (additional axle assemblies and stands are available separately if you want to start in on the next stack of records before this batch have dried). Once dry, you give each – now incredibly pristine disc – a quick brush over to remove any surface debris, pop it into a clean inner sleeve and you are done. Each tank of fluid should clean around 400 records – but it costs peanuts to replace anyway.

Downsides? Aesthetically speaking there's no escaping the slightly “surgical” look of the tank and cradle: nobody is going to think that this is a thing of beauty. Also, don't go thinking that ultrasonic means inaudible: the bath will generate a nasty high-frequency whine that means using it in the listening room (or any other room where people spend time) is a no-no. The degree might vary with different devices, but taking both factors into account, my tank is located in the equipment storage room next to my listening room where it's handy but not intrusive. It also cuts down on visitor requests for hot dogs. It should be noted that the long-term impact of ultrasonic record cleaning is yet to be determined, but there are no scare stories yet, nearly a decade in and you need to remember that every other approach has its longevity issues too.

Now to the benefits – the very, very considerable benefits. First up is the price: at £895 for the RD kit, plus around £375 for a suitable cleaning tank, this is by far the most affordable ultrasonic cleaner out there (additional “kebab skewers” and stands cost £499 a set). It's automatic in operation (meaning you don't have to stand over it) and it cleans around ten records at a time. Let me just say that again – it cleans TEN records at a time. All of which should have you reaching for your credit card already: except that I've saved the best for last – the sonic performance is remarkable. As I said before, the advent of ultrasonic cleaning revealed the difference (and distance)

## TECHNICAL SPECIFICATIONS

**Type:** Kit to adapt regular ultrasonic bath for record cleaning

**Capacity:** 10 discs per cycle

**Duration:** 20 minutes, plus drying time

**Fluid Volume:** 8-9 litres, depending on bath used – distilled water plus chosen additives

**Price:** RD Kit - £895

Spare spindle and stand – £499

**Manufactured by:** Kuzma d.o.o.

**URL:** [www.kuzma.si](http://www.kuzma.si)

**Distributed by:** Audiofreaks

**URL:** [www.audiofreaks.co.uk](http://www.audiofreaks.co.uk)

**Tel:** +44(0)208 948 4153

between clean and really clean. The Kuzma RD delivers up records as clean as gold pants – and musically, the benefits are smack-you-in-the-face obvious...

I could list them in audiophile terms, breaking them down into improvements in fluidity and rhythmic articulation, tonal palette, dynamic expression, separation, and timing. I could talk about the sense of easy, unforced musical flow, and the panache that becomes evident in the playing. I could point out that your records are going to sound more engaging, more natural and more enjoyable than you ever thought they could. But there's a simpler way to describe the impact of ultrasonic cleaning: suddenly, you'll find yourself waving your arms, conducting an imaginary orchestra or thrashing an air guitar. That's what ultrasonic cleaning does! It removes another layer in the process – another layer between you and the performance – and it's a layer at a critical junction. Clean your records ultrasonically and you move that much closer to the musicians and engage much more closely with their playing.

I'm convinced: ultrasonic cleaning is a genuinely fundamental step forward in record replay – one that the Kuzma RD renders affordable, functional, and convenient. It makes secondhand records even more accessible and improves the sound of brand new pressings too. I still find myself shaking my head in wonder every time I use it. This product goes way, way beyond simple recommendation: every record playing audiophile really should have one. +

# WIN! Mad Scientist YANAM and ATOH Interconnect Cables must be won!!!

**A**uckland based Mad Scientist Audio is just about to release a major new series of three innovative and unique types of interconnects. The new trio of cables all use treated carbon-fibre bundles in the signal conductors, with differing kinds of earth conductors featuring a range of copper and silver OCC wire and foils.

We have teamed up with Mad Scientist Audio again, this time to give away two prizes. First prize will be a YANAM (You and the Night and the Music) interconnect, which uses silver and copper OCC wire and copper foil earth worth NZ\$549 and second prize will be ATOH (A Taste of Honey) interconnect worth NZ\$299 (with copper OCC earth). Look out for a review of YANAM in a forthcoming issue of *Hi-Fi+*.

As always with Mad Scientist Audio, carbon fibre was chosen as a result of a series of painstaking trials. Two dozen different wire types were put to test, as signal conductor and earth conductor, before carbon fibre was selected. +



### Competition Question

What material does each interconnect use for its signal conductors?

- A. Carbon Fibre bundles
- B. Individual strands of depleted uranium
- C. Teflon coated rhodium

To answer, please visit Mad Scientist Audio's dedicated competition page at <http://www.madscientist-audio.com/yanamcomp.html>. Alternatively, send your answer on a postcard (including your name, address, and contact details) to "Mad Scientist Competition, Mad Scientist Audio Ltd, 1 Ellivani Rise, Pukekohe, Auckland 2120, New Zealand". The competition closes on January, 7th 2016.

### Competition Rules

The competition will run from November, 5 2015 until January, 7 2016. The competition is open to everyone, but multiple, automated or bulk entries will be disqualified. The winner will be chosen at random from all valid entries, will be contacted via email (where possible) and their name will be published in the magazine. The Editor's decision is final and no correspondence will be entered into. Absolute Multimedia (UK) Ltd. is compliant with the Data Protection Act and UK laws apply. Our policy is such that we will not pass on your details to any third party without your prior consent.



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# Trilogy Audio Systems 925 Hybrid Integrated Amplifier

by Alan Sircom

**T**rilogy Audio Systems is a small British amplifier manufacturer, best known for making hybrid amplifiers that rely on valves for their performance and not their looks. This is because seemingly unlike many manufacturers, Trilogy's Nic Poulson actually read the EU regulations on electrical safety and isn't too keen on breaking those rules by leaving exposed something that can at once cut, burn, and electrocute. This is what separates the simply 'small' from the 'small, but highly professional', and the 925 drips professionalism.

The 925 is Trilogy's first integrated amplifier, and could be considered a hybrid within a hybrid: not only does it combine

hollow and solid-state technologies (two Russian 6N6 $\pi$  triode valves per channel supply pure Class A voltage gain for the 925's input stage, in an otherwise all-silicon design), it uses an intriguing zero feedback bridge configuration that combines the electrical and sonic benefits of both MOSFET and bipolar devices, all providing a meaty-sounding 125W per channel and a solid, but not immobile, case.

The circuit itself is very short, very symmetrical, and very 'belt and braces' in design. Switching is by ruthenium relays, because they sound good and are built to last. The valves are servo controlled to make them extremely symmetrical (and Trilogy's own discreet HT shunt regulation provides them with







▶ optimum voltage feed with no potential for 'sagging'). And that volume control is actually a digitally controlled potentiometer, allowing for 1dB steps in volume and balance. And, of course, key power supply feeds are kept entirely separate, which is why when you pop the cover on the 925, you are met with a huge toroidal transformer.

The hybrid output stage is worth examining. MOSFETs are wonderfully linear output devices (it's why they are so often the solid-state choice for valve amp manufacturers turning to transistors), but their high-current performance is not so hot. Bipolar transistors are great at providing high-current muscle, but seldom sound as refined as FETs. There have been many ways to try to overcome this fundamental dichotomy in output stage performance (usually involving a lot of hand-selection, or buying up vast quantities of a typically discontinued 'wonder' transistor, both of which significantly increase the per-unit cost of the amplifier). Trilogy's solution is to build a bridge: two power amplifiers per channel that simultaneously push and pull power to the loudspeaker. This allows the FET to do its 'first watt' thing without the heavy lifting of the bipolars to mess up the system ground with large amount of current, even when heavy lifting is required. The amp runs in Class AB, but also runs high bias, which is like saying more Class A than B. This is very carefully monitored by the amp's own logic system, but does mean the heatsinks get warm to the touch.

Trilogy is keen to stress the 925 is part of an amplifier system, and uses the company's own RJ45-based TAS link to connect the amplifier to other Trilogy products and the outside world. This allows user configurability of a Trilogy based system down to a very refined degree; power-on volume and balance can be preset, that LED matrix can be set to any level (or to track ambient light levels), and you can even set a seven-day timer to warm up the amplifier remotely while you are still commuting (even to the point of knowing you work late on Thursdays, so power up a couple of hours later that day), rather like what Hive or Nest does with heating systems.

Naturally, with that large red dot matrix panel, products can be assigned names and given trimmed gain levels, but the TAS link also provides status monitoring of connected devices. The two RJ45 connectors are divided into a high-speed data line to communicate between control circuits for general 'housekeeping' tasks, and a low-data rate QuietBus that monitors the audio circuitry spends most of its time in active, and therefore keeps digital control noise out of the signal chain. There's even a PIN code to lock the amp.

These functions are best controlled from a remote handset, and not necessarily the little plastic one that comes as standard, but the matching aftermarket PRC or Personal Remote Control. You can also control these functions through the front panel, using the 'ENT', 'ESC' and volume dial to navigate the menus, but only if you like watching movies about safecracking. ▶



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*“If you can go balanced, you should. In fact, ‘balanced’ is also the best description of the Trilogy 925’s performance, whatever input you use.”*

► The amplifier very definitely needs a short warm up before it comes on song every time it is powered up. There is a ‘hand on the heatsinks’ test that you should apply before listening; when the heatsinks are cold, the 925 sounds flat, mechanical, and distant. When they aren’t, the amp comes to life, and when they are the just the right side of uncomfortably warm (after about half an hour) the sound is transformed.

This is a balanced amplifier; the sonic differences between balanced and single-ended are relatively mild, so while you won’t lose out by using RCAs, if you can go balanced, you should. In fact, ‘balanced’ is also the best description of the Trilogy 925’s performance, whatever input you use. Although this may be Trilogy’s first integrated amp, the 925 is a mature design from a mature designer for a mature audience (‘mature’ in the ‘refined and sophisticated’ sense, not that it only appeals to an older generation).

This is not an amp that does ‘chocolatey mids’, ‘velvet highs’, ‘powerful bass’, or any other aspect of the adjective soup we audiophiles use to describe sound, unless that aspect of the presentation is called for by the recording or the source component itself. The key indicator to this is not picking out individual recordings but when changing from one recording to another; the changes in soundstage width and depth, the changes in dynamics from album to album, the subtlety of recording engineering, the way the microphones were used, the mix, and the master are all easy to hear. This chameleon-like property means the amp imposes no significant character on the sound. This may not be the most dynamic sounding praise for an amplifier, but in fact it’s this quality that marks the 925 out as one of the finest integrated amplifiers you can buy today.

Move from small scale (‘Lucky’ by Kat Edmonson’s *Way Down Low* album on MRI) to the largest (the final movement of Mahler’s Ninth Symphony, conducted by Solti on Decca) and the 925 behaves like a different amplifier, moving from something like a single-ended triode when playing breathy girl-with-guitar to a beefy powerhouse when Mahler throws everything at the listener. The same happens with tonal range, the light and fluffy ‘Lucky’ doesn’t have the same bolted down underpinnings of the Ninth. These are extremes, but the same ‘no amp’ performance applies universally. It’s only on really bilargeg scale music played loud on big, difficult to drive loudspeakers that the Trilogy 925 show its hand – and

its limits. Otherwise, it’s a sophisticated, transparent amplifier that is actually really rather rare in our world.

Let’s dispel the big myth. The Trilogy 925 doesn’t use valves to make the amp sound ‘valvey’ or ‘soft’ or ‘warm’. It uses valves because they are the right device for the task at hand. Their linearity in the preamp means a more natural, less overtly forward sounding signal is fed to the power amplifier stage. The use of MOSFETs and bipolars combined helps to deliver the same more natural, less overtly forward sounding signal to the loudspeakers. This means what the 925 sounds like is a damn good amplifier: the kind that doesn’t draw attention to itself, and that’s the kind you end up keeping for years and years. Very highly recommended. +

## TECHNICAL SPECIFICATIONS

**Type:** hybrid integrated line amplifier:

**Inputs:** 3x XLR stereo pair (balanced), 3x RCA stereo pair and 1x 3.5mm front-mounted stereo jack (single-ended)

**Outputs:** 1x RCA stereo pair (single-ended tape send), multi-way loudspeaker terminals:

**Comms:** 2x RJ45 TAS link connectors

**Rated power:** 135W per channel (eight ohms)

**Frequency Response:** 10Hz–50kHz ±0.5dB

**Distortion:** Less than 1% A weighted at rated output

**Finish:** soft natural silver/aluminium as standard; Mediterraneo Blue and Nero Carbonio paint finish, or ‘Chameleon Colour System’ options

**Dimensions (W×H×D):** 44.5×43×12.7cm

**Weight:** 25.5kg

**Price:** £8,995

**Manufactured by:** Trilogy Audio Systems

**URL:** [www.trilogyaudio.com](http://www.trilogyaudio.com)

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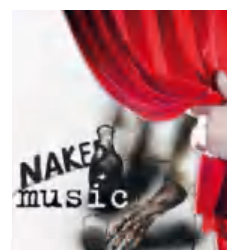
Eleanor's homage to Americana, further tales of love and lust gained, lost and fought over, including songs written by Eleanor with Johnny Rivers, Rodney Crowell, Brad Parker and Dave Rotheray, and featuring tracks originally recorded by Terry Allen, The Texas Tornados, Priscilla Bowman, The Rolling Stones, Sly Stone and Rodney Crowell (as well as a nod to Brit kitchen sink with songs by Nick Lowe and The Fratellis).

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MOSCODISC

# Audion Black Shadow 2 845 mono power amplifier

by Nicholas Ripley

I remember my first Audiophile. That isn't as odd as it sounds, I'm talking about the UK magazine called *Audiophile* (long since defunct) that was briefly the new face of high-end audio. The reason I remember it was it was in the early 1990s and featured the Audio Note Ongaku amplifier on the cover. I wanted one because it was so fantastic, like something from a parallel universe. Unfortunately, its price was from a parallel universe too: I remember it costing slightly more than the house I was living in at the time, I believe. But the idea of a single-ended triode amplifier with huge power tubes never quite left me.

Fast-forward to 2015 and Kondo Sound Lab Ongakus are still way above my pay grade, and while Audio Note UK brings the prices of SET amps to a more real-world level, that level is still more than I could bring myself to pay for every watt.

Enter the Audion Black Shadow 2 mono amps: pumping out a surprisingly meaty sounding 25W from each channel's lone 845 power tube in no feedback, single-ended Class A triode operation, these amplifiers take minimalism to the edge. Technically, you could use these babies as a one-source, two volume pot amplifier without a linestage, but in reality this is likely used with either a source component with built in gain control or some kind of active or passive

preamplifier. There is a rear ground lift switch to help reduce any earthing hum that may occur in a system. There are also four and eight ohm tapped loudspeaker terminals (with, strangely, two sets of black terminals for the return) – but these are not marked as such: four-ohm is next to the black terminal and eight is to the far right of the terminal block. We suggest experimenting anyway, but eight ohms is a good starting place.

The circuit is very simple, with just an E182CC (a kind of super-grade version of the ECC82 double triode) in the preamp gain stage, partnered with the 6922/6H23N as a line driver and the big 845 tube as power amp stage. The latest Black Shadow 2 differs from its predecessor in terms of adding an additional buffer stage. It is fully hard-wired with high purity silver cabling throughout. The ▶





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*“Let’s get this out of the way first. You don’t buy a SET amplifier for its neutrality. You buy it because you like the sound of its sound.”*

- ▶ valves are also fully exposed and run extremely hot; be careful how you site these amps in terms of heat dissipation and scorched flesh.

Like many SET amps today, the Black Shadow can be upgraded through improved components. Given there is a relatively low component count in any SET amp (it’s part of their charm) this is a logical way to improve on a good amplifier design and the Audion can be turned from its Standard specification, through Insignia and Excelsior, to the full Signature level experience, where all the components (right down to the replacement silver-wired transformers and case wiring) are ‘no compromise’. Of course, you can buy your Black Shadow 2 in whatever configuration you choose or can afford at the time, knowing that – unless you went right to the top, there is always more possible.

Let’s get this out of the way first. You don’t buy a SET amplifier for its neutrality. You buy it because you like the sound of its sound. If that does not compute, there are other amplifiers that will be a more perfect fit, and you should lose no sleep over the continued existence of amps like the Audion Black Shadow 2. I know this is a forlorn hope, and what really happens is people who don’t like the concept of SET amps go all Victor (“I don’t believe it!”) Meldrew on audio forums. But this is a little like those people wearing a grey suit telling those wearing a blue suit that their suit isn’t grey. The blue-suit wearers know their suit isn’t grey and they are perfectly comfortable with that. Similarly, people who like SET amps know they are higher in distortion than push-pull ultra-linear pentode or solid-state amps. They just like what that distortion does to the sound.

While we are in full disclosure mode, a SET amp isn’t going to be perfectly compatible with every loudspeaker, even one as powerful as the Audion. And we’re not talking difficult loads; even some potentially perfectly compatible loudspeakers (Monitor Audio for example) seem to require an amplifier with more damping factor than the Black Shadow 2’s provide. A pair of ProAc’s Response D20 Ribbon speakers loaned from the *Hi-Fi+* offices, on the other hand, might seem a less perfect partner on paper, but the two sing sweetly together. If in doubt, put your trust in the dealer or distributor or amp manufacturer; they will likely know what works and what doesn’t.

The Black Shadow 2 draws out the harmonic richness of music and its natural sense of dynamic range. This is the kind of sound that makes you argue over pianists, not cables, because it perfectly shows the playing dynamics of different virtuosos. If you have an opinion about Haifetz vs. Ricci, ▶



*“SET amps are frequently praised for their great soundstaging abilities, and the Audion shows why this is the case.”*

► or Casals vs. Rostopovich, or even Argerich vs. Barenboim vs. Brendel, the Audion amp will be your friend. If you ‘like a bit of Mozart in the evening’, this is probably not for you. The Audion’s unforced dynamic shading and ability to move from *fff* to *ppp* without a hesitation makes music something that must be engaged with, not played in the background.

SET amps are frequently praised for their great soundstaging abilities, and the Audion shows why this is the case. The dimensionality of the soundstage in width, depth, and even height is preserved perfectly, and alters as you move from a small, almost claustrophobic jazz club (Art Blakey’s *A Night At Birdland* on Blue Note) to the scale of an orchestra in a huge studio. There’s a simplicity and lack of artifice to the sound that makes most audio equipment sound fake and mechanical. This obviously works best when working with music that is ‘naturally’ recorded and not too electronic.

All this being said, dub reggae sounds wonderful through the Audions. In truth, I’m probably not the right man to judge this, having only a handful of reggae albums in my collection, but like many of my generation I own a copy of *Garvey’s Ghost* by Burning Spear [Island/Mango] and ‘Black Wa-Da-Da (Invasion)’ is a bit of an occasional favourite. Fellow *Hi-Fi+* writer Jason Kennedy periodically refers to bass as ‘chewy’ and I never quite understood what that meant until hearing this track through these Audions; there’s a real shape and thickness and texture to that deep dub bass that you feel you want to get your teeth into and take a bite from. Yes, you find yourself nodding along in that slow every other backbeat way you are supposed to when listening to dub, but those bass notes give this track a sense of real effortless flow.

That’s the word that best sums up the sound of the Audion Black Shadow 2 – effortless. There is no sense of electronics getting in the way of the sound, more like musicians have been fed into your loudspeakers (without the inevitable icky mess this would cause in reality). Whether it’s the lack of global feedback, the increased amount of even-order harmonic distortion, the limited number of components between input and output, or the quality of those components in the signal path, the net result is that this amplifier simply sounds great in a kind of “gets out of the way” manner.

In ultimate terms, the Audion Black Shadow 2’s effortless and openness means recordings that are not sympathetic to those musical goals sound thin and flat. The downside with living in 2015 is there are a lot of recordings from the last 20+ years that have heavy signal compression. While the classical and jazz idioms are mostly free from this blight, rock and pop recordings suffer greatly, and the Audion amps do not take kindly to this form of compression. Where less open-sounding amplifiers mask the horrors of this kind of peak

loudness recording style, the Audion leaves nowhere to hide, and that will make a lot of new recordings hard to hear.

SET amps aren’t for everyone, but the Audion Black Shadow 2’s show just how seductive they can be. This is a beguiling amplifier, with the sort of effortless sound that wins people over. Correctly partnered and used with music not plagued by peak loudness, this hot running amp will inflame the passions. +

## TECHNICAL SPECIFICATIONS

**Type:** Zero feedback, single-ended triode mono power amplifier

**Tubes:** 1× 845, 1× 6922/6H23N, 1× E182CC per channel

**Power output:** 25W Class A into 8Ω

**Loading:** four and eight ohm nominal

**Frequency Response:** 13Hz–34kHz ±3dB

**Distortion:** <0.1%

**Noise:** <(CCIR) –90dB

**Sensitivity:** Variable >150mV full output

**Dimensions (W×H×D):** 26×25×46cm (per channel, excl. tubes)

**Weight:** 12kg per channel

**Price:** From £7,000 per pair

**Manufactured by:** Audion International

**URL:** [www.audion.co.uk](http://www.audion.co.uk)

**Distributed in the UK by:** Deco Audio

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## Signal Projects Lynx

by Jason Kennedy

Some nations seem to be drawn to great audio more than others and the Greeks are among the most passionate in Europe – you only have to look up the audiophile club of Athens on YouTube to get some idea of how large they go on high-end hardware. They clearly love the stuff and so it's only natural that they should be making it as well, and this extends to the full gamut of components including cable. Nick Korakakis is one such enthusiast, a man who got carried away with hardware but realised that upgrading wasn't providing the improvements he was expecting because certain problems remained. He eventually came to the conclusion that cables were the main source of that problem, the weakest link in the system, and set about building some of

his own, a pursuit which led to the formation of Signal Projects in 2007. This, it turned out, was the eve of a global recession, but the fact that he's still in business suggests he was doing something right in making cables that worked in other systems as well as his own.

The Lynx range of interconnects, speaker cables, and power cables is one up from the Monitor range at the bottom of the Signal Projects tree and five ranges down from Golden Sequence at the top. Lynx cables use four nines (99.9999%) purity, solid core conductors in copper with PTFE dielectric. It's a shielded design with aluminium foil and copper braiding to keep noise at bay. The cables are terminated in RCA phono plugs that Signal Projects machines to its own design, which incorporates a threaded clamping system for a tight fit. Behind the RCA plug is a lump of around 20mm diameter, which makes it difficult to use with components that have the outputs stacked close together. When asked what was in the lumps, Nick told me, "inside these termination modules we apply a specific grounding configuration with lower resistance on the receiving plug, which makes the shield fully directional". But he wouldn't go into any more detail than that. Fortunately, the Townshend Allegri I use has two pairs of outputs so I was able to use the Lynx across both and accommodate their girth. ▶



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*“The Signal Project Lynx is a slow grower: the more you play, the more you realise that it is letting you hear further into the mix.”*

► Build and finish quality is professional and the packaging fairly lavish, taking the form of a solid wooden box embellished with a certificate and complete with crimson ties to stop the cable bashing about (the whole product also comes with a free T-shirt – I didn't wear it). Something that Signal Project has decided not to do is provide channel identification on its interconnects, when asked why, the answer came down to, “we never use channel indicators”, which must lead to the occasional mix up in installation.

Used between preamp and power amp, the Lynx made up for its practical shortcomings more than well enough; in fact, it delivered a better sound than the alternatives I had to hand, some of which are more

expensive. For a start, it's tonally neutral and introduces no audible changes in balance, the leading edges aren't emphasised, with a little bit of upper mid zing, and the bass isn't amped up to give more power in the bottom end. It doesn't even have a tendency to exaggerate reverberation to produce a more spacious presentation, something that is extremely common. What it does do is deliver the music in a calm, clear, and clean fashion.

Lynx is not one of those cables with a character that hits you the moment the music starts playing; those that do tend to have a tonal shift that highlights certain details but changes the overall balance. The Signal Projects Lynx is a slow grower: the more you play, the more you realise that it is letting you hear further into the mix simply by giving the signal a very low noise conduit. I don't like those lumps but suspect they have a significant bearing on the overall effectiveness of the cable. With Herbie Hancock's version of 'It Ain't Necessarily So' [*Gershwin's World*, Decca], you get the solidity of the instruments and the spaces in between them and there is less in the way of haze or overhang on each note so the quiet bits are quieter and the notes better focused. When this reduction of noise is applied to dense pieces of music the combined effect is pretty special and you hear more of the timbre and intonation, more of the fine details that go to produce a convincing whole, and this results in greater intelligibility in every aspect of the performance.

Bass does not seem to extend as far as some interconnects but you hear more variety and shape within deep sounds. There is some gorgeously low tympani on Kristin Hersh's 'Your Ghost' [*Hips and Makers*, 4AD]; with this cable, you clearly hear all three strikes to that tympani, where most other cables simply blurs them together into a homogenous deep boom. It is easy to hear the instrument or recording has harmonic detail, and playing classical pieces in reverberant spaces have plenty. This was especially the case with Javier Perianes' Manuel Blasco de Nebra's Piano Sonatas 1-6 Op.1 [*Harmonia Mundi*], which produced a sound that was placed deep behind the speakers in its own charmed world. The character of the room is obvious thanks to the absence of smear from the cable and so the beauty of the playing is all the easier to enjoy.

The most telling track proved to be Tom Waits' 'In Shades' [*Heart Attack & Vine*, Ayslum], an instrumental piece played over voices in a restaurant. It's the voices that are hardest to get right because they're not that high in the mix, but the Lynx let me hear the character, if not the actual words, a level of definition other cables would have failed to offer by comparison.

I had three things to review for *Hi-Fi+* this month and not being a cable enthusiast I left this till last, inevitably that meant that the Signal Project turned out to be the best of the bunch, the component I would most like to hang onto! It would seem that Signal Project's assessment of what holds a system back is correct; you can't get truly great sound without truly great cables. +

## TECHNICAL SPECIFICATIONS

**Type:** Analogue interconnect with RCA jack terminations

**Length:** 1m pair

**Conductor:** Solid core copper

**Dielectric:** PTFE, polyolefin

**Shielding:** Aluminium foil, braided copper

**Capacitance:** RCA 23.05 pF/ft

**Resistance:** 4.48 mOhm/ft

**Inductance:** 0.61 µH/ft

**Price:** £940/1m pair XLR, RCA or BNC connections, £230/additional ½m

**Manufacturer:** Signal Projects Audio Ltd  
**URL:** [signalprojects.com](http://signalprojects.com)

**UK Distributor:** BD Audio

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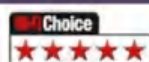


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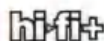


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# record reviews

## How To Read Them

The information contained in the record reviews is presented in the following way. Albums are identified by label and – where possible – serial number. Beneath this you will find one or more icons which denote the available formats for the recording. The first icon refers to the format reviewed.

The ratings at the bottom of each review reflect the reviewer's opinion of the recording quality, and musical merits of the album. You'll soon realise that a great many musically significant albums offer less than wonderful sound. Don't let it put you off! For your information, the scale rates a standard, good quality pop recording as slightly below average.

*This issue's featured reviewers are:*

**DD** – Dennis D Davis

**JK** – Jason Kennedy

**SR** – Stuart Robinson

	CD		120g LP
	Gold CD		150g LP
	HDCD		180g LP
	XRCD		200g LP
	Double Disc		10" LP
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	SACD		Vinyl Double Album
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### Altamira

#### Darts & Arrows

ears&eyes Records

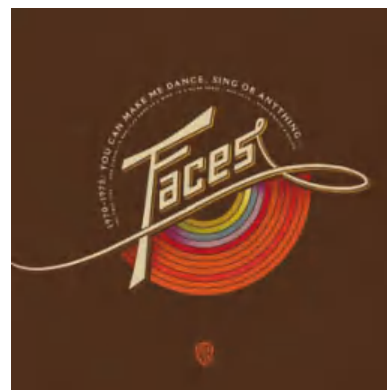
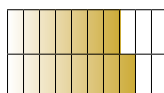


Darts & Arrows hail from Chicago, and like another of that city's musical exponents, Tortoise, have something of the post rock about their sound. That's not all though, since this outfit is broader than any clear category. By combining keyboards, violin, saxophones, and the guitar of leader/songwriter Bill Mackay, they produce a sound that Tom Waits would be more than happy to have behind his bar room poetry. The line up includes Ben Boye on keyboards, guests Renée Baker on fiddle, and alto sax player Nick Mazzarella; the latter pair frequently playing in harmony, which is pretty unusual and very effective.

The band was created as a "post millennial folk group" in 2006, and they certainly blur boundaries, those between rock, jazz, and folk being the most obvious. The tunes they play swing from the hipster groove with a Mariachi edge of '1919 Molasses Tragedy' to the almost pure rock of 'Evergreen' via the serenity of 'Carried There & Ponytailed': great titles for great tunes. The sound is brighter than average and not too polished as producer Matt Lux (Iron and Wine) seems to be going for a warts and all vibe that creates a live PA style balance; so not very ECM, but accessible and entertaining with nonetheless. **JK**

RECORDING

MUSIC



### 1970–1975:

#### You Can Make Me Dance, Sing Or Anything...

The Faces

Warner Bros



The Faces formed when Ronnie Lane, Ian McLagan, and Kenney Jones lost Steve Marriott to Humble Pie and found Rod Stewart and Ronnie Wood from the Jeff Beck Group. Their debut, *The First Step*, is a great blues rock ramble with a nod to Peter Green's Bluesbreakers in the cover art, and contains both Zeppelin- and Who-inspired hard rockers. On *Long Player* from '71, they morph into a bluesy 'Stones style with the tight but loose feel that would become their hallmark.

On *A Nod Is As Good As A Wink... To A Blind Horse* released in the same year, the Faces hit their stride with a unique style and some blinding songwriting and playing. The obvious standout is 'Stay With Me', but Ronnie Lane's 'Debris' is in many ways the stronger song in what is a very powerful set. *Ooh La La* from '73 suffered from Stewart's solo success, but contains several notable tunes including single 'Cindy Incidentally' and the superb title track.

Augmented with a plethora of extra tracks, some not previously released, this box reveals just how good the Faces were in pretty well all respects, and thanks to remastering from analogue originals they sound good to boot.. **JK**

RECORDING

MUSIC



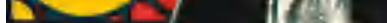
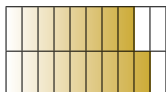




CD

Galles Music

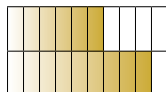
You can hear echoes of those composers (McLaughlin in particular because he played the same instrument), but it's the player's own inspiration that shines brightest. His nylon strings are played with precision and verve. We are so used to the zing of steel strings that this takes a little adjustment, but with pieces like 'In The Grip Part 1' the beauty of the tune and the playing are all that matters. The recording is open and natural, the reverb sounds real, and it's quiet enough to hear every nuance of the nimble finger-work. **JK**



CD

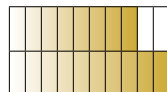


For all his claims of intergalactic travel, Ra could turn out some fine melodies with a distinctly earthly, if not always down to earth, appeal. The highlights include 'Spontaneous Simplicity' with its slow build intro, and the modal, 'The World of Africa'. Most of the numbers are mono, which makes the stereo examples the more obvious and, dare I say it, spatial. There are a lot of songs on this collection, something that marks Ra out from the crowd as much as his orchestration. Peterson's selection offers a fascinating journey through the cosmic world of Saturn's greatest bandleader. **JK**



Van Morrison  
Rhino/WB

*His Band And The Street Choir* from 1970 is a much more grounded and ebullient affair, a full on R&B romp that produced the hit 'Domino' and two others to boot. It's lesser known highlight is the quiet 'I'll Be Your Lover Too'. Both albums include bonus tracks in the form of alternate versions and takes that provide insight into choices made in the studio – making it clear that they made the right ones at the time. **JK**







## For One To Love

**Cécile McLorin Salvant**

Mack Avenue

Widely considered the brightest new jazz vocalist of the twenty first century, Salvant got her foot in the door singing mostly vintage tunes, including traditional folk, Fats Waller, and Bessie Smith material. With her second release on Mack Avenue, she assembles a more modern selection of tunes from Broadway and Tin Pan Alley dating from the 1930s into the 1960s, plus five of her own compositions. Salvant continues to leave the impression that she can do anything with her voice, with her Sarah Vaughan-like control.

Whether sharing the stage with her crack trio on 'Something's Coming', from *West Side Story*, making 'You're Getting To Be A Habit With Me' her own, or premiering five of her own excellent new songs, Salvant polishes each of her performances on this double LP like a gem. Her band plays like it's been behind her for years, although only Aaron Diehl on piano carries over from *Woman Child*. Recorded at Avatar studios in New York, and mastered by Mark Wilder, the Senior Engineer at Sony, who has been involved in all the Miles Davis and Bob Dylan remasters, the sound of the LPs is gorgeous with a perfect soundstage and balance—indeed, it has an even better sound than when I've heard Salvant live. **DD**

## RECORDING MUSIC



## Blues From The Gutter

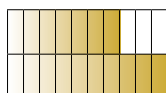
## Champion Jack Dupree

Pure Pleasure SD 8019

Champion Jack Dupree was a New Orleans bred boogie-woogie piano player. But boogie-woogie piano music has little or no collector value. The same cannot be said for Dupree LPs, which have always fetched healthy prices in record bins and on eBay. While you can't give away LPs from such accomplished boogie-woogie piano players as Albert Ammons or Meade Lux Lewis, Dupree's style of mixing boogie-woogie and the blues seems more modern and hip, attracting music lovers and record collectors alike.

While just about anything on Atlantic or Blue Horizon is worth searching out, the real goods are to be found on Dupree's very first LP, released in 1958 on Atlantic—*Blues From The Gutter*; the title says it all and the lyrics rarely stray from sex and drugs. Dupree's delivery was never better and his voice and delivery simply ooze rock and roll, and I'm not talking about music. If the proverbial fire struck and I had to choose five blues LPs to save, this would make the cut. The mono original has a deeper soundstage and more immediacy, which has been traded off for a wider stage with this stereo issue. That quibble aside, this is essential music that should not be missed. **DD**

## RECORDING MUSIC



## So Much For The Afterglow

Everclear

Intervention Records IR 007

To launch his new label's "(Lost) '90s" Series, Shane Buettner has given us lovingly restored vinyl versions of Everclear's second (*Sparkle & Fade*) and this, the third of the band's albums. Everclear is a post-Nirvana grunge band, formed in 1991, a few years before Cobain's death. Everclear is the alias of Art Alexakis, a modern Renaissance man, who worked his way North from Los Angeles, to San Francisco, and then to Portland where he started assembling a power trio, which by the time of the second album involved bass player Craig Montoya and drummer Greg Eklund.

Alexakis pours many of his bad childhood experiences into this music, with excruciating but brilliant lyrics as in 'Normal Like You' and 'White Men In Black Suits'. *Afterglow* was released in October of 1997 on a CD that's still available, and a rare LP that is available at a high premium on the collector market. The original CD and LP sound much more alike than a comparison of this outstanding reissue and the original vinyl. The dynamic range is significantly improved in the reissue, and the original muddy soundstage is cleaned up, producing a crystal clear soundstage. A great record, and one that's worthy of such loving resurrection. **DD**

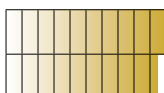
## RECORDING MUSIC





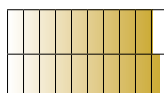
Analogue Productions APJ 084

Hancock took over all synthesizer duties, along with Fender Rhodes and clavinet and was backed by bass and drums. The opening bars of ‘Watermelon Man’ with Bill Summers blowing into a beer bottle, along with the band’s funky grooves and new electric sounds, captured the crossover fans who had otherwise avoided buying jazz records. Columbia’s LP release had decent sound, but Analogue Productions’ new vinyl mastering by Ryan Smith at Sterling Sound, takes the sound up several notches from there. The LP is housed in a gorgeous film-laminated jacket from Stoughton Printing — it looks and sounds better than ever.



Music Matters 84215

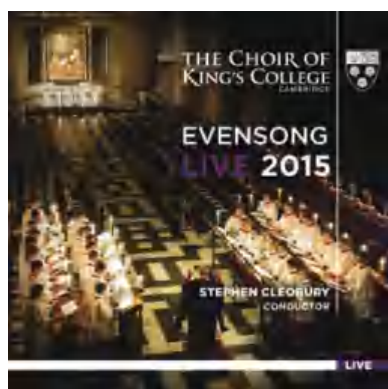
The LP is comprised of four songs, one gentle ballad and three medium burners. Two compositions come from Larry Willis who plays piano on the session, along with Bob Cranshaw on bass and Clifford Jarvis on drums, an all-star new music lineup. The compositions and playing, if perhaps not quite as groundbreaking as McLean's *Let Freedom Ring* from 1962, remains among the top tier of McLean's albums. Never released in a 45-RPM series, this 33.3-RPM version is a special treat. Unlike some Van Gelder recordings, the stereo image is realistic. Instruments don't appear stuck in the two speakers, the instruments are well balanced in the mix, and the LP presents a nice soundstage. One of the 60's best Blue Notes, and one of the best Blue Note album covers. **DD**



Mobile Fidelity UDSACD 2085

Compared to the premium CD versions from Sony Japan (K2HD mastered) and FIM (Pure ReFlection 32-Bit Mastering) one might think from the differences in sound that there were three mike feeds, but the Mobile Fidelity easily bests these versions, with their intrusive tape hiss, muddy bass, and in some parts the bass moving positions mid-song. The long unavailable 'blue-spec' CD from Sony Japan and the Mobile Fidelity are a closer match. Mobile Fidelity used the Mark Wilder remix from a first generation back-up tape and the result is outstanding. Next up, the long awaited vinyl! **DD**





### Choral Evensongs From Salisbury, Durham And King's, Cambridge CD

**Choral Evensong For Easter Day**  
Priority PRCD 1126

**Choral Evensong From Salisbury Cathedral**

Priory PRCD 1118

**Evensong Live 2015 From King's**  
KGS 0011

Given that the daily service of Choral Evensong is a very large part of any cathedral choir's commitment, it's not surprising that each year there are CD recordings of the service – we have here recordings from Durham, Salisbury, and King's Cambridge. The Durham contribution is the entire Office of Choral Evensong as might be heard in the cathedral on Easter Day. Salisbury has themed a service loosely around the themes of "light" and "living stones", while King's has assembled live recordings from services during the 2013–2014 academic year.

'Durham's CD is suitably festive and is made up of pieces that have a link with the cathedral. There is a high proportion of contemporary music here. This CD is a good listen with confident, tuneful singing and firm accompaniment from organists Francesca Massey and David Ratnanayagam. Under James Lancelot's direction, the music at Durham has gone from strength to strength with the girls taking (on this occasion) the lion's share of the treble singing.

More traditional fare comes from Salisbury with a more timeless service sung by boy choristers and lay vicars.

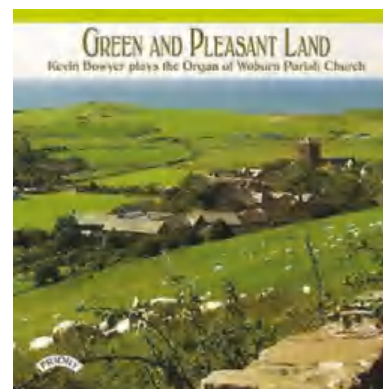
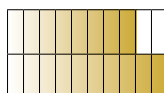


There is some spirited singing here – in particular in Sumsion's setting of the Te Deum in G. Being local produce, Walter Alcock's Evening Canticles in A also have that same élan.

And finally, to King's College Chapel Cambridge for Evensong Live 2015. From the outset, there's no mistake about the choir and setting. The programme is varied from – at one end of the spectrum – a superb men's voices performance of Tallis' Loquebantur and Parson's Ave Maria, on through to the Magnificat by Giles Swayne and Gorecki's Totus Tuus. There are also large scale works by Poulenc, Mendelssohn, Parry, and Vaughan Williams. Of course with recordings of live performances you're going to hear coughs, creaks, and other noises, but that doesn't take away from the sense of immediacy, and everyone is on the top of their game. Mention must be made of Tom Etheridge's superb performance of Alain's Litanies with the final chord resonating around this hallowed space for a full twenty-three seconds.

If there's one criticism it's the lack of variety in the hymns. But each of these CDs is a fair reflection of the venue, and Choral Evensong is alive and well. The inclusion of new works – particularly on the Durham CD, certainly gives the lie to any claims that cathedrals are not commissioning new music. In each place these CDs should certainly fly off the shelves in their respective stores. **SR**

**RECORDING**  
**MUSIC**



### Green And Pleasant Land CD

**Kevin Bowyer / the Organ of Woburn Parish Church**

Priory PRCD 1131

After his recent *Organ Party* CDs recorded in Lancaster and Glasgow, Kevin Bowyer has headed South for this recital of pre-First World War music on the 1904 Norman and Beard organ in Woburn Parish Church. His first acquaintance with it was to give a recital. "Rarely have I been more bowled over by an organ at first hearing than I was that day," he wrote. Going on to describe it as an undiscovered gem, Bowyer felt it needed to be preserved on disc – hence this recording.

What has resulted is a selection of pieces – sadly many of them largely forgotten – from a set of volumes of *The Organ Loft*, published monthly between 1900 and 1915. In no uncertain terms Bowyer blows the dust off works from organists such as Frank Heddon Bond, Oliver Arthur King, and Owen Henry Powell amongst others. There is a wide mixture of rousing and charming pieces here, sensitively played with some fascinating sound colours. The Woburn organ has a considerable amount of versatility and a detailed programme note explains some of the effective stop combinations. Kevin Bowyer has revived a number of gems! **SR**

**RECORDING**  
**MUSIC**







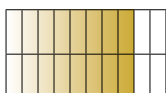
### In Praise Of St Columba CD

The sound world of the Celtic Church

The Choir of Gonville and Caius College, Cambridge, Geoffrey Webber, Barnaby Brown  
Delphian CD

This foray back to the sound-worlds of sixth-century Ireland, *In Praise of St Columba* is a far cry from the choir's regular duty singing at services in its college chapel. We are transported into a sequence of different sonorities – there's plenty of plainchant here but with some fine instruments added, namely triplepipes, lyre, Irish horn, and bodhrán. As the excellent and detailed programme notes point out, the various so-called “sound-worlds” are imagined, including seventh century hymns from Iona, and tenth-century chants from Irish foundations in Switzerland. No music survives from the Celtic church so evidence for the use of instruments has been drawn from stone carvings, manuscript illustrations, and stories in prose. We are told that Barnaby Brown (described as a Highland piper) and the Gonville and Caius Choir have collaborated on this project since 2004. There has been much research to arrive at the most-informed realisations of the pieces heard here. This is a fascinating listen, and the CD notes are detailed and thorough, which is more than can be said for some CDs we get for review! **SR**

RECORDING  
MUSIC



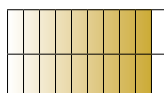
### Benedicta: Marian chant from Norcia CD

The Monks of Norcia  
Universal Music 4811733

If you ever feel the need to lie down in a darkened room after a hard day's work at the office, keyboard, or whatever, then here is perfect musical offering to soothe your frazzled mind. This is a collection of thirty different pieces of plainsong, the common thread being the fact that they (in the words of the CD blurb) “meditate on the life of the person closest to our Lord, his mother Mary.” Many of the responsories, antiphons, and hymns have been chosen because they've rarely featured on other CD recordings of Gregorian chant. This is an excellent sequence beautifully sung and recorded, but apart from a recording of the Basilica Bells on track one, the texture throughout is the same and rather akin to “slow television”. It's doing rather well in the US classic charts.

There could be more information about this Benedictine community in the CD notes, but after some internet surfing I can reveal there are about twenty brothers - mostly from the USA, and that they are situated in the shadow of the Sybilline mountains about three hours' drive north of Rome. When they're not singing day-in day-out, they're brewing beer – Birra Nursia using a method from Trappist monks based in Belgium. **SR**

RECORDING  
MUSIC



### Sir Hubert Parry CD

The Choir of Westminster Abbey/  
Onyx Brass/Cook/O'Donnell.  
Hyperion CDA 68089

Although this CD has already been favourably reviewed by the leading music industry magazines, there was much mirth on social media during the summer over whether there was enough 32' sound from the organ. Rest assured, there is grandeur and 32 ft sound here in spades. Parry's noble writing befits the majestically setting of Westminster Abbey and the brass, singers, and organist reflect that. After all that grandeur, we're treated to a beautifully tender airing of “Dear Lord and Father of mankind” in the arrangement by Herbert Arthur Chambers who introduced a new musical idea to the inner verses. One pleasant surprise on this CD is the performance of “Hear my words, ye people” in an arrangement for brass by Grayston Ives. “Jerusalem” and the “Coronation Te Deum” and the Great Service are among the other works here.

Westminster Abbey is not the most resonant place to record in, but the Hyperion team has achieved a good balance here, though on a couple of occasions the choir is rather recessed in the splendid mix of brass and Abbey organ. With Jeremy Dibble's knowledgeable and authoritative notes, this is a fine CD to play again and again. **SR**

RECORDING  
MUSIC





# Album of the Month:

## The Pirates of Penzance

by Alan Sircom

It's strange. A great deal of Decca's early stereo legacy is very well documented, with some of its finest recordings of the era highly collectable, rarely out of print, and justly praised. The Solti/Wagner 'Ring' cycle, for example, is commonly considered the acme of classical recording in terms of engineering prowess, and has been in the catalogue constantly for almost 60 years. But one of the best recordings of that pioneering time at the Decca studio is often overlooked, in part because the subject matter just isn't as fashionable as it was back in 1957.

Gilbert & Sullivan's wry light operas have waned in popularity in recent years. Even *The Mikado*, that light confection so popular in Christmas Past, is rolled out less and less frequently today. In part, this comes down to the passing of the D'Oyly Carte family and the eventual nomadic stance of the opera company that bears their name, but these entertaining Victorian comic operas no longer seem to get the same coverage or as much recording time as yet another version of Elgar's Cello Concerto played by one of many interchangeable decorative young blonde women in little black dresses. Fortunately, although the 2000s saw the D'Oyly Carte Opera Company actually close down, the company returned in 2013, working with Scottish Opera. And its first production was *The Pirates of Penzance*.

Coming swiftly after *H.M.S. Pinafore* in the late 1870s, it's the love story between indentured pirate Frederic and Mabel, the daughter of Major-General Stanley. It was extremely well received then as now, and ranks with *H.M.S. Pinafore* and *The Mikado* as one of G&S' most popular and most frequently performed comic operas. The 'Major-General's Song' is possibly the most famous patter song in history, and arguably the most recognisable song in Gilbert & Sullivan's entire canon.

There are many recordings of *The Pirates of Penzance* with at least two versions recorded under the Decca label. Both of these feature the D'Oyly Carte Opera Company and the Royal Philharmonic Orchestra. The later version, recorded in 1968, remains popular and has been in print in LP and CD almost constantly since its release, but the earlier 1957 version (recorded in the Kingsway Hall) has long been out of print until this two-disc Australian Eloquence version was released earlier this year.

In many respects, this first-days-of-stereo recording is the superior one, especially in its rendition of orchestra and chorus. Relying on the famous Decca Tree microphone placement, this album has a dimensionality and sense of unforced, natural

ambience that is lost with many more modern and close mic'd recordings. You feel as if you are in a concert hall, in the presence of living, breathing musicians, even when there's a 'blip' in the master tape mid way through what is otherwise perhaps the finest recording of an overture, ever!

Although later recordings stress the articulation of the singers, this one relies instead on their musicianship and diction, especially that of Peter Pratt in the Major-General's role. A closer recording may make the song seem more direct, but this one is so full of life and energy that you feel you want to stand up and applaud.

The new Eloquence version is bundled with a fast-paced version of the one-act *Cox & Box*. This was Gilbert & Sullivan's first collaboration and the recording was made by Decca in the mid 1970s. This is also well recorded, but in a very different style to that classic of the early days of stereo. But it's *The Pirates of Penzance* that enthalls and entertains most of all. Buy this, buy it again in LP form if you can find a good copy, listen to the overture and wonder just where we went wrong in making good stereo recordings! +



Recorded: 1957, Kingsway Hall, London

Conductor: Isidore Godfrey

First Released: Decca SXL 4038/4039 (2x LP)

Current release: Australian Eloquence ELQ4807059

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